

F

931

.L17





536
202
Price 10 Cents

Klondyke Nuggets

A Brief Description of the Great Gold Regions
in the Northwest Territories and Alaska

BY

JOSEPH LADUE

Founder of Dawson City, N.W.T.

Explorer, Miner and Prospector



PHOTOGRAPHED FROM ONE OF THE AUTHOR'S NUGGETS

NEW YORK

AMERICAN TECHNICAL BOOK COMPANY

45 VESEY STREET

American Technical Series No. 5. Issued quarterly. Annual subscription \$2.00
Entered at the New York, N. Y., Post Office as second class matter
September, 1897



KLONDYKE NUGGETS

BEING

A BRIEF DESCRIPTION OF THE FAMOUS GOLD REGIONS OF
THE GREAT CANADIAN NORTHWEST AND ALASKA

✓
BY JOSEPH LADUE

FOUNDER OF DAWSON, N. W. T., AND AUTHOR OF "KLONDYKE FACTS."



43563-021

NEW YORK
AMERICAN TECHNICAL BOOK CO.,
45 VESEY STREET.

m.l.

— N

COPYRIGHT, 1897,
BY AMERICAN TECHNICAL BOOK CO.

All Rights Reserved

No extracts can be made without the permission of the Publishers.

F 931

L 17



1/15/32

LIBRARY
Mar 24/17

PREFACE.

THE extraordinary excitement arising from the reports of the discovery of Gold in the Klondyke region in the great Canadian Northwest is not surprising to one who, through personal residence and practical experience, is thoroughly conversant with the locality.

Having recently returned for a temporary stay, after a somewhat successful experience, I have received applications for information in numbers so great that it far exceeds my ability and the time at my disposal to make direct replies.

I have therefore arranged with the American Technical Book Co., 45 Vesey Street, New York City, for the issue of this brief description, preparatory to the publication of my larger book, "Klondyke Facts," a book of 224 pages, with illustrations and maps, in which will be found a vast fund of practical information, statistics, and all particulars sought for by those who intend emigrating to this wonderful country.

It is well-nigh impossible to tell the truth of these recent discoveries of gold, but while I can only briefly describe the territory in this small work, it

shall be my endeavor to give the intending prospector, in the large work above mentioned, as many facts as possible, and these may thoroughly be relied upon, as from one who has lived continuously in those regions since 1882.

JOSEPH LADUE.

KLONDYKE NUGGETS.

CHAPTER I.

KLONDYKE.

KLONDYKE! The word and place that has startled the civilized world is to-day a series of thriving mining camps on the Yukon River and its tributaries in the Canadian Northwest Territories.

Prior to August 24, 1896, this section of the country had never been heard of. It was on this day that a man named Henderson discovered the first gold.

On the first day of the following month the writer commenced erecting the first house in this region and called the place Dawson City, now the central point of the mining camps.

Dawson City is now the most important point in the new mining regions. Its population in June, 1897, exceeded 4,000; by June next it cannot be less than 25,000. It has a saw-mill, stores, churches, of the Presbyterian, Baptist, Methodist and Roman Catholic denominations. It is the headquarters of the

Canadian Northwest Mounted Police, *and perfect law and order is maintained.*

It is at Dawson City that the prospector files his claims with the Government Gold Commissioner, in the recording offices.

Dawson City faces on one of the banks of the Yukon River, and now occupies about a mile of the bank. It is at the junction of the Klondyke River with the Yukon River. It is here where the most valuable mining claims are being operated on a scale of profit that the world has hitherto never known. The entire country surrounding is teeming with mineral wealth.

Copper, silver and coal can be found in large quantities, but little or no attention is now being paid to these valuable minerals, as every one is engaged in gold-hunting and working the extraordinary placer mining claims already located.

The entire section is given up to placer mining. Very few claims had been filed for quartz mining. The fields of gold will not be exhausted in the near future. No man can tell what the end will be. From January to April, 1897, about \$4,000,000 were taken out of the few placer claims then being worked. This was done in a territory not exceeding forty square miles. All these claims are located on Klondyke River and the little tributaries emptying into it, and the districts are known as Big Bonanza, Gold Bottom and Honker.

I have asked old and experienced miners at Dawson, City who mined through California in Bonanza days, and some who mined in Australia, what

they thought of the Klondyke region, and their reply has invariably been, "The world never saw so vast and rich a find of gold as we are working now."

Dawson City is destined to be the greatest mining camp in the history of mining operations.

CHAPTER II.

KLONDYKE FACTS.

THERE is a great popular error in reference to the climate of the gold regions. Many reports have appeared in the newspapers which are misleading. It has been even stated that the cold is excessive almost throughout the year. This is entirely a mis-statement.

I have found I have suffered more from winter cold in Northern New York than I ever did in Alaska or the Canadian Northwest.

I have chopped wood in my shirt-sleeves in front of my door at Dawson City when the thermometer was 70 degrees below zero, and I suffered no inconvenience. We account for this from the fact that the air is very dry. It is a fact that you do not feel this low temperature as much as you would 15 below zero in the East.

We usually have about three feet of snow in winter and it is as dry as sawdust.

As we have no winter thaws no crust forms on the snow, therefore we travel from the various points that may be necessary with snowshoes. These may be purchased from the Indians in the vicinity of Dawson City at from \$5.00 to \$10.00 per pair according to the quality.

The winter days are very short. In this region there are only two hours from sunrise to sunset. The sun rises and sets away in the south but there is no pitch darkness.

The twilight lasts all night and the Northern Lights are very common. Then in summer it is exactly the other way. The day there in July is about twenty hours long. The sun rising and setting in the north. A great deal has been said about the short seasons, but as a matter of fact a miner can work 12 months in the year when in that region.

Spring opens about May 1st and the ice commences to break up about that time. The Yukon River is generally clear of ice about May 15. The best part of the miner's work commences then and lasts till about October 1st.

The winter commences in October but the miner keeps on working through the winter. The rainy season commences in the latter part of August and lasts two or three weeks.

A fall of two feet of snow is considered heavy.

There is a wide difference in the quantity of snow that accumulates on the coast and the ranges in the interior where the principal mining claims are located.

While the fall of snow on the coast is heavy the depth of snow as far down as the Yukon, Stewart and Klondyke rivers is inconsiderable.

In my new work on this territory entitled "Klondyke Facts" I deal more largely on the climate of this region.

There are still good diggings at Circle City in Alaska, but nearly all the miners have left for Klondyke, not being satisfied with the pay dirt which they were working. I know at least 20 good claims in Circle City.

Fort Cudahy, or as it is sometimes called Forty Mile Creek, is now practically exhausted as a mining camp, and the miners have left for other diggings.

There will undoubtedly be new and valuable diggings discovered very quickly along this region as it is certain that this enormous territory is rich in gold-bearing districts.

The entire country is teeming with mineral wealth.

When mining operations commence on coal it will be specially valuable for steamers on the various rivers and greatly assist transportation facilities.

In the next few years there will certainly be recorded the most marvellous discoveries in this territory, usually thought to be only a land of snow and ice and fit only to be classed with the Arctic regions.

It is marvellous to state that for some years past we have been finding gold in occasional places in this territory, but from the poverty of the people no effort was made to prospect among the places reported.

It is my belief that the greatest finds of gold will be made in this territory. It is safe to say that not 2 per cent. of all the gold discovered so far has been on United States soil.

The great mass of the work has been done on the

Northwest territory, which is under the Canadian Government.

It is possible however that further discoveries will be made on American soil, but it is my opinion that the most valuable discoveries will be further east and south of the present claims, and would advise prospectors to work east and south of Klondyke.

THE YUKON RIVER AND ITS TRIBUTARIES.

“What the Amazon is to South America, the Mississippi to the central portion of the United States, the Yukon is to Alaska. It is a great inland highway, which will make it possible for the explorer to penetrate the mysterious fastnesses of that still unknown region. The Yukon has its source in the Rocky Mountains of British Columbia and the Coast Range Mountains in southeastern Alaska, about 125 miles from the city of Juneau, which is the present metropolis of Alaska. But it is only known as the Yukon River at the point where the Pelly River, the branch that heads in British Columbia, meets with the Lewes River, which heads in southeastern Alaska. This point of confluence is at Fort Selkirk, in the Northwest Territory, about 125 miles southeast of the Klondyke. The Yukon proper is 2,044 miles in length. From Fort Selkirk it flows northwest 400 miles, just touching the Arctic circle; thence southward for a distance of 1,600 miles, where it empties into Behring Sea. It drains more than 600,000 square miles of territory, and discharges one-third more water into Behring Sea than does the Mississippi into the Gulf of Mexico. At its mouth it is sixty miles wide. About 1,500 miles inland it widens out from one to ten miles. A thousand islands send the channel in as many different directions. Only natives who are thoroughly familiar with the river are entrusted with the piloting of boats up the stream during the season of low water. Even at the season of high water it is still so shallow as not to be navigable anywhere by seagoing vessels, but only by flat-bottomed boats with a carrying capacity of four to five hundred tons. The draft of steamers on the Yukon should not exceed three and a half feet.

“The Yukon district, which is within the jurisdiction of the Canadian Government and in which the bulk of the gold has been found, has a total area, approximately, of 192,000 square miles, of which 150,768 square miles are included in the watershed of the Yukon. Illustrating this, so that it may appeal with definiteness to the reader, it may be said that this territory is greater by 71,100 square miles than the area of Great Britain, and is nearly three times that of all the New England States combined.

“A further fact must be borne in mind. The Yukon River is absolutely closed to navigation during the winter months. In the winter the frost-king asserts his dominion and locks up all approaches with impenetrable ice, and the summer is of the briefest. It endures only for twelve to fourteen weeks, from about the first of June to the middle of September. Then an unending panorama of extraordinary picturesqueness is unfolded to the voyager. The banks are fringed with flowers, carpeted with the all-pervading moss or tundra. Birds countless in numbers and of infinite variety in plumage, sing out a welcome from every treetop. Pitch your tent where you will in midsummer, a bed of roses, a clump of poppies and a bunch of bluebells will adorn your camping. But high above this paradise of almost tropical exuberance giant glaciers sleep in the summit of the mountain wall, which rises up from a bed of roses. By September everything is changed. The bed of roses has disappeared before the icy breath of the winter king, which sends the thermometer down sometimes to seventy degrees below freezing point. The birds fly to the southland and the bear to his sleeping chamber in the mountains. Every stream becomes a sheet of ice, mountain and valley alike are covered with snow till the following May.

“That part of the basin of the Yukon in which gold in greater or less quantities has actually been found lies partly

in Alaska and partly in British territory. It covers an area of some 50,000 square miles. But so far the infinitely richest spot lies some one hundred miles east of the American boundary, in the region drained by the Klondyke and its tributaries. This is some three hundred miles by river from Circle City.

“ We have described some of the beauties of the Yukon basin in the summer season, but this radiant picture has its obverse side.

“ Horseflies, gnats and mosquitoes add to the joys of living throughout the entire length of the Yukon valley. The horsefly is larger and more poignantly assertive than the insect which we know by that name. In dressing or undressing, it has a pleasant habit of detecting any bare spot in the body and biting out a piece of flesh, leaving a wound which a few days later looks like an incipient boil. Schwatka reports that one of his party, so bitten was completely disabled for a week. ‘ At the moment of infliction,’ he adds, ‘ it was hard to believe that one was not disabled for life.’

“ The mosquitoes according to the same authority are equally distressing. They are especially fond of cattle, but without any reciprocity of affection. ‘ According to the general terms of the survival of the fittest and the growth of muscles most used to the detriment of others,’ says the lieutenant in an unusual burst of humor, ‘ a band of cattle inhabiting this district, in the far future, would be all tail and no body, unless the mosquitoes should experience a change of numbers.’ ”

I am indebted to Wm. Ogilvie, Esq., for the following valuable information relative to The Yukon District.

“ The Yukon District comprises, speaking generally, that part of the Northwest Territories lying west of the watershed of the Mackenzie River ; most of it is drained by the Yukon River and its tributaries. It covers a distance

of about 650 miles along the river from the coast range of mountains.

“ In 1848 Campbell established Fort Selkirk at the confluence of the Pelly and Lewes Rivers ; it was plundered and destroyed in 1852 by the Coast Indians, and only the ruins now exist of what was at one time the most important post of the Hudson’s Bay Company to the west of the Rocky Mountains in the far north. In 1869 the Hudson’s Bay Company’s officer was expelled from Fort Yukon by the United States Government, they having ascertained by astronomical observations that the post was not located in British territory. The officer thereupon ascended the Porcupine to a point which was supposed to be within British jurisdiction, where he established Rampart House ; but in 1890 Mr. J. H. Turner of the United States Coast Survey found it to be 20 miles within the lines of the United States. Consequently in 1891 the post was moved 20 miles further up the river to be within British territory.

“ The next people to enter the country for trading purposes were Messrs. Harper and McQuestion. They have been trading in the country since 1873 and have occupied numerous posts all along the river, the greater number of which have been abandoned. Mr. Harper is now located as a trader at Fort Selkirk, with Mr. Joseph Ladue under the firm name of Harper & Ladue, and Mr. McQuestion is in the employ of the Alaska Commercial Company at Circle City, which is the distributing point for the vast regions surrounding Birch Creek, Alaska. In 1882 a number of miners entered the Yukon country by the Taiya Pass ; it is still the only route used to any extent by the miners, and is shorter than the other passes though not the lowest. In 1883 Lieutenant Schwatka crossed this same pass and descended the Lewes and Yukon Rivers to the ocean.

“ The explorers found that in proximity to the boundary

line there existed extensive and valuable placer gold mines, in which even then as many as three hundred miners were at work. Mr. Ogilvie determined, by a series of lunar observations, the point at which the Yukon River is intersected by the 141st meridian, and marked the same on the ground. He also determined and marked the point at which the western affluent of the Yukon, known as Forty Mile Creek, is crossed by the same meridian line, that point being situated at a distance of about twenty-three miles from the mouth of the creek. This survey proved that the place which had been selected as the most convenient, owing to the physical conformation of the region, from which to distribute the supplies imported for the various mining camps, and from which to conduct the other business incident to the mining operations—a place situate at the confluence of the Forty Mile Creek and the Yukon, and to which the name of Fort Cudahy has been given—is well within Canadian territory. The greater proportion of the mines then being worked Mr. Ogilvie found to be on the Canadian side of the international boundary line, but he reported the existence of some mining fields to the south, the exact position of which with respect to the boundary he did not have the opportunity to fix.

“The number of persons engaged in mining in the locality mentioned has steadily increased year by year since the date of Mr. Ogilvie’s survey, and it is estimated that at the commencement of the past season not less than one thousand men were so employed. Incident to this mineral development there must follow a corresponding growth in the volume of business of all descriptions, particularly the importation of dutiable goods, and the occupation of tracts of the public lands for mining purposes which according to the mining regulations are subject to the payment of certain prescribed dues and charges. The Alaska Com-

mercial Company, for many years subsequent to the retirement of the Hudson's Bay Company, had a practical monopoly of the trade of the Yukon, carrying into the country and delivering at various points along the river, without regard to the international boundary line or the customs laws and regulations of Canada, such articles of commerce as were required for the prosecution of the fur trade and latterly of placer mining, these being the only two existing industries. With the discovery of gold, however, came the organization of a competing company known as the North American Transportation and Trading Company, having its headquarters in Chicago and its chief trading and distributing post at Cudahy. This company has been engaged in this trade for over three years, and during the past season despatched two ocean steamers from San Francisco to St. Michael, at the mouth of the Yukon, the merchandise from which was, at the last mentioned point, transhipped into river steamers and carried to points inland, but chiefly to the company's distributing centre within Canadian territory. Importations of considerable value, consisting of the immediately requisite supplies of the miners, and their tools, also reach the Canadian portion of the Yukon District from Juneau, in the United States, by way of the Taiya Inlet, the mountain passes, and the chain of waterways leading therefrom to Cudahy. Upon none of these importations had any duty been collected, except a sum of \$3,248.80 paid to Inspector Constantine in 1894, by the North American Transportation and Trading Company and others, and it is safe to conclude, especially when it is remembered that the country produces none of the articles consumed within it except fresh meat, that a large revenue was being lost to the public exchequer under the then existing conditions.

“For the purpose of ascertaining officially and authoritatively the condition of affairs to which the correspond-

ence referred to in the next preceding paragraph relates, the Honorable the President of the Privy Council, during the spring of 1894, despatched Inspector Charles Constantine, of the Northwest Mounted Police Force, accompanied by Sergeant Brown, to Fort Cudahy and the mining camps in its vicinity. The report made by Mr. Constantine on his return, established the substantial accuracy of the representations already referred to. The value of the total output of gold for the season of 1894 he estimated at \$300,000.

“The facts recited clearly establish—first, that the time had arrived when it became the duty of the Government of Canada to make more efficient provision for the maintenance of order, the enforcement of the laws, and the administration of justice in the Yukon country, especially in that section of it in which placer mining for gold is being prosecuted upon such an extensive scale, situated near to the boundary separating the Northwest Territories from the possessions of the United States in Alaska; and, second, that while such measures as were necessary to that end were called for in the interests of humanity, and particularly for the security and safety of the lives and property of the Canadian subjects of Her Majesty resident in that country who are engaged in legitimate business pursuits, it was evident that the revenue justly due to the Government of Canada, under its customs, excise and land laws, and which would go a long way to pay the expenses of government, was being lost for the want of adequate machinery for its collection.

“Accordingly in June last a detachment* of twenty members of the Mounted Police Force including officers

*The detachment was made up as follows:—Inspector C. Constantine, Officer Commanding Yukon Detachment N. W. M. Police; Inspector, D. A. E. Strickland; Assistant Surgeon, A. E. Wills; 2 Staff Sergeants; 2 Corporals; 13 Constables.

was detailed for service in that portion of the Northwest Territories. The officer in command, in addition to the magisterial and other duties he is required to perform by virtue of his office and under instructions from the Department of Mounted Police, was duly authorized to represent where necessary, and until other arrangements can be made, all the departments of the government having interests in that region. Particularly he is authorized to perform the duties of Dominion lands agent, collector of customs, and collector of inland revenue. At the same time instructions were given Mr. William Ogilvie, the surveyor referred to as having, with Dr. Dawson, been entrusted with the conduct of the first government expedition to the Yukon, to proceed again to that district for the purpose of continuing and extending the work of determining the 141st meridian, of laying out building lots and mining claims, and generally of performing such duties as may be entrusted to him from time to time. Mr. Ogilvie's qualifications as a surveyor, and his previous experience as explorer of this section of the Northwest, peculiarly fit him for the task.

“As it appears quite certain, from the report made by Mr. Ogilvie on his return to Ottawa, in 1889, and from the report of Mr. Constantine, that the operations of the miners are being conducted upon streams which have their sources in the United States Territory of Alaska, and flow into Canada on their way to join the Yukon, and as doubtless some of the placer diggings under development are situated on the United States side of the boundary it is highly desirable, both for the purpose of settling definitely to which country any land occupied for mining or other purposes actually belongs, and in order that the jurisdiction of the courts and officers of the United States and Canada, for both civil and criminal purposes, may be established, that the determination of the 141st meridian west

of Greenwich from the point of its intersection with the Yukon, as marked by Mr. Ogilvie in 1887-88, for a considerable distance south of the river, and possibly also for some distance to the north, should be proceeded with at once. Mr. Ogilvie's instructions require him to go on with the survey with all convenient speed, but in order that this work may be effective for the accomplishment of the object in view the co-operation of the Government of the United States is necessary. Correspondence is in progress through the proper authorities with a view to obtaining this co-operation. It may be mentioned that a United States surveyor has also determined the points at which the Yukon River and Forty Mile Creek are intersected by the 14th meridian."

CHAPTER II.

ROUTES, DISTANCES, AND TRANSPORTATION.

AFTER considerable experience I have decided that the best route for a man to take to the gold regions is from Seattle, Washington, to Juneau, Alaska, and then to Dawson City, by the pass and waterways, and I will therefore describe this route more in detail than any of the others.

I am devoting a special chapter to the outfit for travellers, and will therefore deal in this chapter with the route only.

The traveller having paid his fare to Seattle should on arrival there have not less than \$500. This is the minimum sum necessary to pay his fare from Seattle to Juneau, purchase his outfit and supplies for one year and pay his necessary expenses in the gold region for that length of time.

I think it deplorable that so many are starting at this time for the gold-fields. I do not recommend starting before March 15. I will return at that time to my claims on the Klondyke, if it were wise to go sooner, I should certainly go.

The reason March 15 is best is that the season is better then. If a man has only, say, \$500 and wants to do his own packing over the Taiya Pass, it gives him time to do it by starting March 15, as he will then be in Juneau April 1st. I fear a great deal of hardship for those who started out so as to reach Juneau for winter travel.

Of course while I say \$500 is sufficient to go to Dawson City, a man should take \$1,000 or even more if pos-

sible as he will have many opportunities to invest the surplus.

While prices will undoubtedly advance at Dawson City owing to the large influx of people, I do not think the advance will be excessive. It has never been the policy of the two trading companies to take advantage of the miners.

The traveller having arrived in Juneau from Seattle, a journey of 725 miles by water, immediately purchases his complete outfit as described in another chapter. He then loses no time in leaving Juneau for Dyea, taking a small steamboat which runs regularly to this port via the Lynn Canal. Dyea has recently been made a customs port of entry and the head of navigation, this side of the Taiya Pass. The distance between Juneau and Dyea is about one hundred miles.

From Dyea, which is the timber-line, he packs his outfit to the foot of the Taiya Pass—the length of which to the summit is about 15 miles. He must now carry his outfit up the Pass, which he generally does in two or more trips according to the weight of his outfit, unless he is able hire Indians or mules; but so far there are very few to Indians to be hired and still fewer mules.

He now starts for Lake Lindeman from the head of the Pass, a distance of eight miles—the distance from Dyea to Lake Lindeman being 31 miles.

At Lake Lindeman he commences to make his boat, for which he has brought the proper supplies in his outfit, with the exception of the timber, which he finds at Lake Lindeman. He spends one week at Lake Lindeman making his boat and getting ready for the long trip down the waterways to Dawson City, the heart of the Klondyke region. The trip through Lake Lindeman is short, the lake being only five miles long. At the foot of the lake he must portage to Lake Bennet, the portage however being very short, less than a mile.

Lake Bennet is 28 miles long, while going through this lake the traveller crosses the boundary between British Columbia and the Northwest Territory.

After going down Lake Bennet the traveller comes to Caribou Crossing—about four miles long, which takes him to Lake Tagish, twenty miles in length. After leaving Tagish he finds himself in Mud or Marsh Lake, 24 miles long, then into the Lynx River, on which he continues for 27 miles till he comes to Miles Canyon, five-eighths of a mile long.

Immediately on leaving Miles Canyon he has three miles of what is called bad river work, which, while not hazardous, is dangerous from the swift current and from being very rocky. Great care has to be taken in going down this part of the river.

He now finds himself in White Horse Canyon the rapids of which are three-eighths of a mile in length and one of the most dangerous places on the trip, a man is here guarded by a sign, "Keep a good lookout."

No stranger or novice should try to run the White Horse Rapids alone in a boat. He should let his boat drop down the river guided by a rope with which he has provided himself in his outfit and which should be 150 feet long. It would be better if the traveller should portage here, the miners having constructed a portage road on the west side and put down roller-ways in some places on which they roll their boats over. They have also made some windlasses with which they haul their boat up the hill till they are at the foot of the canyon. The White Horse Canyon is very rocky and dangerous and the current extremely swift.

After leaving the White Horse Canyon he goes down the river to the head of Lake Labarge, a distance of 14 miles. He can sit down and steer with the current, as he is going down the stream all the way. It is for this reason that in

returning from the diggings he should take another route, of which he will get full particulars before leaving Dawson ; therefore I do not take the time to give a full description of the return trip via the Yukon to St. Michael. He now goes through Lake Labarge—for 31 miles—till he strikes the Lewes River, this taking him down to Hootalinqua. He is now in the Lewes River which takes him for 25 miles to Big Salmon River and from Big Salmon River 45 miles to Little Salmon River—the current all this time taking him down at the rate of five miles an hour. Of course in the canyons it is very much swifter.

The Little Salmon River takes him to Five Finger Rapids, a distance of one hundred and twenty miles. In the Five Finger Rapids the voyage should be made on the right side of the river, going with the current. These rapids are considered safe by careful management, but the novice will already have had sufficient experience in guiding his boat before reaching them.

From Five Finger Rapids the traveller goes six miles below, down the Lewes, to the Rink Rapids. On going through the Rink Rapids, he continues on the Lewes River to Fort Selkirk, the trading post of Harper and Ladue, where the Pelly and Lewes, at their junction, form the headwaters of the Yukon. You are now at the head of the Yukon River, and the worst part of your trip is over.

You now commence to go down the Yukon, and after a trip of ninety-eight miles, you are in the White River. You keep on the White River for ten miles, to the Stewart River, and then twenty-five miles to Fort Ogilvie. You are now only forty miles from Dawson City.

Your journey is now almost ended. After a forty-mile trip on the Yukon, you arrive at Dawson City, where the Klondyke empties in the Yukon.

All through this trip you have been going through a mountainous country, the trees there being pine, a small

amount of spruce, cottonwood and birch. You have not seen much game, if any, as it is growing scarce along that line of river, and very hard to find. The traveller had therefore better make preparation to depend on the provisions he has brought with him. If he has stopped to fish, he may have been successful in catching whitefish, grayling and lake trout, along the lakes and rivers.

The total journey from Seattle to Dawson City has taken about two months. In connection with this trip from Juneau to Dawson City, it is perhaps better to give the reader the benefit of the trip of Mr. William Stewart, who writes from Lake Lindeman, May 31st, 1897, as follows:—

“We arrived here at the south end of the lake last night by boat. We have had an awful time of it. The Taiya Pass is not a pass at all, but a climb right over the mountains. We left Juneau on Thursday, the twentieth, on a little boat smaller than the ferry at Ottawa. There were over sixty aboard, all in one room about ten by fourteen. There was baggage piled up in one end so that the floor-space was only about eight by eight. We went aboard about three o'clock in the afternoon and went ashore at Dyea at seven o'clock Friday night. We got the Indians to pack all our stuff up to the summit, but about fifty pounds each; I had forty-eight pounds and my gun.

“We left Dyea, an Indian village, Sunday, but only got up the river one mile. We towed all the stuff up the river seven miles, and then packed it to Sheep Camp. We reached Sheep Camp about seven o'clock at night, on the Queen's Birthday. A beautiful time we had, I can tell you, climbing hills with fifty pounds on our backs. It would not be so bad if we could strap it on rightly.

“We left Sheep Camp next morning at four o'clock, and reached the summit at half-past seven. It was an awful climb—an angle of about fifty-five degrees. We

could keep our hands touching the trail all the way up. It was blowing and snowing up there. We paid off the Indians, and got some sleighs and sleighed the stuff down the hill. This hill goes down pretty swift, and then drops at an angle of fifty-five degrees for about forty feet, and we had to rough-lock our sleighs and let them go. There was an awful fog, and we could not see where we were going. Some fellows helped us down with the first load, or there would have been nothing left of us. When we let a sleigh go from the top it jumps about fifty feet clear, and comes down in pieces. We loaded up the sleighs with some of our stuff, about two hundred and twenty-five pounds each, and started across the lakes. The trail was awful, and we waded through water and slush two and three feet deep. We got to the mouth of the canyon at about eight o'clock at night, done out. We left there that night, and pushed on again until morning. We got to the bottom of an awful hill, and packed all our stuff from there to the hill above the lake. We had about two and a half miles over hills, in snow and slush. I carried about five hundred pounds over that part of the trail. We had to get dogs to bring the stuff down from the summit to the head of the canyon.

We worked two days bringing the stuff over from the canyon to the hill above the lake. Saturday we worked all day packing down the hill to the lake, and came here on a scow. We were out yesterday morning cutting down trees to build a boat. The timber is small, and I don't think we can get more than four-inch stuff. It rained all afternoon, and we couldn't do anything. There are about fifty boats of all sorts on Lake Bennet, which is about half a mile from here. I have long rubber boots up to the hips, and I did not have them on coming from the summit down, but I have worn them ever since.

We met Barwell and Lewis, of Ottawa, to-day. They

were out looking for knees for their boats. They left Ottawa six weeks ago, and have not got any farther than we have. There was a little saw-mill going here, and they have their lumber sawn. We have it that warm some days here that you would fairly roast, and the next day you would be looking for your overcoat. Everybody here seems to be taking in enough food to do them a couple of years.

We are now in Canadian territory, after we passed the summit. I will have to catch somebody going through to Dyea to give him this letter, but I don't know how long before I can get any one going through. This is the last you will hear from me until I get down to the Klondyke."

Mr. Stewart adds: "I wrote this in the tent at 11 o'clock at night during twilight."

If you take this trip in winter, however, you have to purchase a sled at Juneau, and sled it over the frozen waterways to Dawson City.

For the benefit of my readers in Canada and for parties leaving for the great Northwest Territory for the gold fields, I take pleasure in quoting the following description of a Canadian route:—

"Canadians should awaken to the fact that they have emphatically 'the inside track' to their own gold fields, a route not half the distance, largely covered by railways and steamboats, with supply stations at convenient intervals all the way. By this route the gold-fields can be reached in two months or six weeks, and the cost of travel is ridiculously cheap—nearly anybody can afford to go even now, and by the spring it should be fitted out for the accommodation of any amount of traffic.

The details of the information in the following article are given by Mr. A. H. H. Heming, the artist who ac-

accompanied Mr. Whitney in his journey towards the Barren Lands, and the data may be accepted as correct, as they were secured from the Hudson Bay officials.

The details of the inland Canadian route, briefly, are as follows : By C. P. R. to Calgary, and thence north by rail to Edmonton ; from there by stage to Athabasca Landing, 40 miles ; then, there is a continuous waterway for canoe travel to Fort Macpherson, at the mouth of the Mackenzie River, from which point the Peel River lies southward to the gold region. The exact figures are as follows :

	MILES.
Edmonton to Athabasca Landing.....	40
To Fort McMurray.....	240
Fort Chippewyan.....	185
Smith Landing.....	102
Fort Smith.....	16
Fort Resolution.....	194
Fort Providence.....	168
Fort Simpson.....	161
Fort Wrigley.....	136
Fort Norman.....	184
Fort Good Hope.....	174
Fort Macpherson.....	282
<hr/>	
Total.....	1882

There are only two portages on this route of any size—that from Edmonton to Athabasca Landing, over which there is a stage and wagon line, and at Smith Landing, sixteen miles, over which the Hudson Bay Company has a tramway. There are four or five other portages of a few hundred yards, but with these exceptions there is a fine “down grade” water route all the way. It is the old Hudson Bay trunk line to the north that has been in use for nearly

a century. Wherever there is a lake or a long stretch of deep water river navigation the company has small freight steamers which ply back and forward during the summer between the portage points or shallows. With comparatively little expenditure the company or the Government can improve the facilities along the line so that any amount of freight or any number of passengers can be taken into the gold region at less than half the time and cost that it takes Americans to reach it from Port St. Michael, at the mouth of the Yukon to the Klondyke, exclusive of the steamer trip of 2500 miles from Seattle to Port St. Michael.

Canadians can leave here on a Monday at 11.15 A.M., and reach Edmonton on Friday at 7 P.M. From that point, a party of three men with a canoe, should reach Fort Macpherson easily in from 50 to 60 days, provided they are able-bodied young fellows with experience in that sort of travel. They will need to take canoes from here, unless they propose to hire Indians with large birch bark canoes to carry them. Birch bark canoes can be secured of any size up to the big ones manned by ten Indians that carry three tons. But birch barks are not reliable unless Indians are taken along to doctor them, and keep them from getting water-logged. The Hudson Bay Company will also contract to take freight northward on their steamers until the close of navigation. Travellers to the gold mines leaving now would probably reach Fort Macpherson before navigation closed.

The letter from Rev. Mr. Stringer, the missionary, published in the Spectator on July 2, shows that the ice had only commenced to run in the Peel River, which is the water route south-east from Fort Macpherson into the gold region, on September 30 last year.

Any Canadians who are anxious to get into the Klondyke ahead of the Americans can leave between now and

August 1, reach Fort Macpherson, and if winter comes on they can exchange their canoes for dog trains, and reach the Klondyke without half the difficulty that would be experienced on the Alaska route. The great advantage of the inland route is that it is an organized line of communication. Travellers need not carry any more food than will take them from one Hudson Bay post to the next, and then there is abundance of fish and wild fowl en route. They can also be in touch with such civilization as prevails up there, can always get assistance at the posts, and will have some place to stay should they fall sick or meet with an accident. If they are lucky enough to make their pile in the Klondyke, they can come back by the dog sled route during the winter. (There is one winter mail to Fort Macpherson in winter.) Dogs for teams can be purchased at nearly any of the line of Hudson Bay posts that form a chain of road-houses on the trip.

Parties travelling alone will not need to employ guides until they get near Fort Macpherson, and from there on to the Klondyke, as the rest of the route from Edmonton is so well defined, having been travelled for years, that no guides are required.

You don't need a couple of thousand dollars to start for Klondyke to-morrow by the Edmonton route. All you need is a good constitution, some experience in boating and camping, and about \$150. Suppose a party of three decide to start. First they will need to purchase a canoe, about \$35 or less; first-class ticket from Hamilton to Edmonton, \$71.40; second class, ditto, \$40.90; cost of food at Edmonton for three men for two months (should consist of pork, flour, tea and baking-powder), \$35; freight on canoe to Edmonton, \$23. Total for three men from Hamilton to Fort Macpherson, provided they travel second-class on the C. P. R. will be \$218.70. These figures are furnished by Mr. Heming, who has been over the route

400 miles north of Edmonton, and got the rest of his data from the Hudson Bay officials.

If three men chip in \$150 each they would have a margin of over \$200 for purchasing their tools and for transport from Fort Macpherson to the Klondyke. This is how it may be done on the cheap, though Mr. Heming considers it ample for any party starting this summer. Prices will likely rise on the route when the rush begins. If the Hudson Bay people are alive to their interests they will forward a large amount of supplies for Fort Macpherson immediately and make it the base of supplies for the Klondyke during the coming winter.

Parties should consist of three men each, as that is the crew of a canoe. It will take 600 pounds of food to carry three men over the route. Passengers on the C. P. R. are entitled to carry 600 pounds of baggage. The paddling is all down stream, except when they turn south up Peel River, and sails should be taken, as there is often a favorable wind for days.

There are large scows on the line, manned by ten men each and known as 'sturgeon heads.' They are like canal boats, but are punted along and are used by the Hudson Bay people for taking forward supplies to the forts.

The return trip to the United States is usually made by the Yukon steamers from Dawson City direct to St. Michael via the Yukon and Anvik River, thence by ocean steamer from St. Michael to San Francisco."

The following letter is interesting to the prospector as showing the difficulties to overcome up the Taiya Pass to Lake Lindeman.

Winnipeg, July 27, 1897.

A letter has been received from George McLeod, one of the members of the Winnipeg party of gold hunters that

left here recently for the Yukon. He wrote from Lake Lindeman under date of July 4, and states that the party expected to leave on the journey from the river a week later. They had a fine boat, with a freight capacity of two tons about completed. The real work of the expedition started when the small steamer which conveyed the party from Juneau arrived at Dyea. The men had to transfer their goods to a lighter one mile from shore, each man looking after his own packages. After getting everything ashore the party was organized for ascent of the mountain pass, which at the hardest point is 3,000 feet above sea level. McLeod and his chum, to save time and money too, engaged 35 Indians to pack their supplies over the mountains, but they had to carry their own bedding and grub to keep them on the road. It is fifteen miles to the summit of the pass and the party made twelve miles the first day, going into camp at night tired from climbing over rocks, stumps, logs and hills, working through rivers and creeks and pushing their way through brush. At the end of twelve miles they thought they had gone fifty. On the second day out they began to scale the summit of the mountain. Hill after hill confronted them, each one being steeper than the last. There was snow on the top of the mountain, and rain was falling, and this added greatly to the difficulties of the ascent. In many places the men had to crawl on their hands and knees, so precipitous was the mountain side. Time after time the men would slip back several inches, but they recovered themselves and went at it again.

Finally, the summit was gained, McLeod being the first of the party to reach the top. After resting and changing their clothes the descent was commenced. McLeod and his chums purchased sleighs, on which they loaded their goods and hauled for five miles. This was extremely laborious work, and the men were so used up working in

the scorching sun that they were compelled to work at nights and sleep during the day. Two days after the descent began the sleighs were abandoned, and the men packed the goods for three miles and a half. They were fortunate in securing the services of a man who had two horses to convey the goods to Lake Lindeman.

McLeod says the worry in getting over the pass is terrible, and he has no desire to repeat the experience. He advises all who go in to have their goods packed all the way from Dyea to Lake Lindeman. It costs 17 or 18 cents per pound for packing.

McLeod expected that Klondyke would not be reached before July 25.

I think it specially valuable for the reader to give him the approximate distances to Fort Cudahy, which is below Dawson City via the various routes.

This table of distances has been prepared by Mr. James Ogilvie, and I also give a number of his notes which will be of great value to the traveller when making the trip from Juneau to Dawson City.

APPROXIMATE DISTANCES TO FORT CUDAHY.

VIA ST. MICHAEL.

	Miles.
San Francisco to Dutch Harbor.....	2,400
Seattle or Victoria to Dutch Harbor.....	2,000
Dutch Harbor to St. Michael.....	750
St. Michael to Cudahy.....	1,600

VIA TAIYA PASS.

Victoria to Taiya.....	1,000
Taiya to Cudahy.....	650

VIA STIKINE RIVER.

Victoria to Wrangell.....	750
Wrangell to Telegraph Creek.....	150
Telegraph Creek to Teslin Lake.....	150
Teslin Lake to Cudahy.....	650

DISTANCES FROM HEAD OF TAIYA INLET.

	Miles.
Head of canoe navigation, Taiya River.....	5·90
Forks of Taiya River.....	8·38
Summit of Taiya Pass.....	14·76
Landing at Lake Lindeman.....	23·06
Foot of Lake Lindeman.....	27·49
Head of Lake Bennet.....	28·09
Boundary line B. C. and N. W. T. (Lat 60°).....	38·09
Foot of Lake Bennet.....	53·85
Foot of Caribou Crossing (Lake Nares).....	56·44
Foot of Tagish Lake.....	73·25
Head of Marsh Lake.....	78·15
Foot of Marsh Lake.....	97·21
Head of Miles Cañon.....	122·94
Foot of Miles Cañon.....	123·56
Head of White Horse Rapids.....	124·95
Foot of White Horse Rapids.....	125·33
Tahkeena River.....	139·92
Head of Lake Labarge.....	153·07
Foot of Lake Labarge.....	184·22
Teslintoo River.....	215·88
Big Salmon River.....	249·33
Little Salmon River.....	285·54
Five Finger Rapids.....	344·83
Pelly River.....	403·29
White River.....	499·11
Stewart River.....	508·91
Sixty-Mile Creek.....	530·41
Dawson City—The Principal Mining Town.....	575·70
Fort Reliance.....	582·20
Forty-Mile River.....	627·08
Boundary Line.....	667·43

“ Another route is now being explored between Telegraph Creek and Teslin Lake and will soon be opened. Telegraph Creek is the head of steamer navigation on the Stikine River and is about 150 miles from Teslin Lake. The Yukon is navigable for steamers from its mouth to Teslin Lake, a distance of 2,300 miles. A road is being located

by the Dominion Government. A grant of \$2,000 has been made by the province of British Columbia for opening it.

“J. Dalton, a trader, has used a route overland from Chilkat Inlet to Fort Selkirk. Going up the Chilkat and Klahela Rivers, he crosses the divide to the Tahkeena River and continues northward over a fairly open country practicable for horses. The distance from the sea to Fort Selkirk is 350 miles.

“Last summer a Juneau butcher sent 40 head of cattle to Cudahy. G. Bounds, the man in charge, crossed the divide over the Chilkat Pass, followed the shore of Lake Arkell and, keeping to the east of Dalton’s trail, reached the Yukon just below the Rink Rapids. Here the cattle were slaughtered and the meat floated down on a raft to Cudahy, where it retailed at \$1 a pound.

“It is proposed to establish a winter road somewhere across the country travelled over by Dalton and Bounds. The Yukon cannot be followed, the ice being too much broken, so that any winter road will have to be overland. A thorough exploration is now being made of all the passes at the head of Lynn Canal and of the upper waters of the Yukon. In a few months it is expected that the best routes for reaching the district from Lynn Canal will be definitely known.

“It is said by those familiar with the locality that the storms which rage in the upper altitudes of the coast range during the greater part of the time, from October to March, are terrific. A man caught in one of them runs the risk of losing his life, unless he can reach shelter in a short time. During the summer there is nearly always a wind blowing from the sea up Chatham Strait and Lynn Canal, which lie in almost a straight line with each other, and at the head of Lynn Canal are Chilkat and Chilkoot Inlets. The distance from the coast down these channels to the

open sea is about 380 miles. The mountains on each side of the water confine the currents of air, and deflect inclined currents in the direction of the axis of the channel, so that there is nearly always a strong wind blowing up the channel. Coming from the sea, this wind is heavily charged with moisture, which is precipitated when the air currents strike the mountains, and the fall of rain and snow is consequently very heavy.

“In Chilkat Inlet there is not much shelter from the south wind, which renders it unsafe for ships calling there. Capt. Hunter told me he would rather visit any other part of the coast than Chilkat.

“To carry the survey from the island across to Chilkoot Inlet I had to get up on the mountains north of Haines mission, and from there could see both inlets. Owing to the bad weather I could get no observation for azimuth, and had to produce the survey from Pyramid Island to Taiya Inlet by reading the angles of deflection between the courses. At Taiya Inlet I got my first observation, and deduced the azimuths of my courses up to that point. Taiya Inlet has evidently been the valley of a glacier; its sides are steep and smooth from glacial action; and this, with the wind almost constantly blowing landward, renders getting upon the shore difficult. Some long sights were therefore necessary. The survey was made up to the head of the Inlet on the 2d of June. Preparations were then commenced for taking the supplies and instruments over the coast range of mountains to the head of Lake Lindeman on the Lewes River. Commander Newell kindly aided me in making arrangements with the Indians, and did all he could to induce them to be reasonable in their demands. This, however, neither he nor any one else could accomplish. They refused to carry to the lake for less than \$20 per hundred pounds, and as they had learned that the expedition was an English one, the second chief

of the Chilkoot Indians recalled some memories of an old quarrel which the tribe had with the English many years ago, in which an uncle of his was killed, and he thought we should pay for the loss of his uncle by being charged an exorbitant price for our packing, of which he had the sole control. Commander Newell told him I had a permit from the Great Father at Washington to pass through his country safely, that he would see that I did so, and if the Indians interfered with me they would be punished for doing so. After much talk they consented to carry our stuff to the summit of the mountain for \$10 per hundred pounds. This is about two-thirds of the whole distance, includes all the climbing and all the woods, and is by far the most difficult part of the way.

“ On the 6th of June 120 Indians, men, women and children, started for the summit. I sent two of my party with them to see the goods delivered at the place agreed upon. Each carrier when given a pack also got a ticket, on which was inscribed the contents of the pack, its weight, and the amount the individual was to get for carrying it. They were made to understand that they had to produce these tickets on delivering their packs, but were not told for what reason. As each pack was delivered one of my men receipted the ticket and returned it. The Indians did not seem to understand the import of this; a few of them pretended to have lost their tickets; and as they could not get paid without them, my assistant, who had duplicates of every ticket, furnished them with receipted copies, after examining their packs.

“ While they were packing to the summit I was producing the survey, and I met them on their return at the foot of the cañon, about eight miles from the coast, where I paid them. They came to the camp in the early morning before I was up, and for about two hours there was quite a hub-bub. When paying them I tried to get their names, but

very few of them would give any Indian name, nearly all, after a little reflection, giving some common English name. My list contained little else than Jack, Tom, Joe, Charlie, &c. some of which were duplicated three and four times. I then found why some of them had pretended to lose their tickets at the summit. Three or four who had thus acted presented themselves twice for payment, producing first the receipted ticket, afterwards the one they claimed to have lost, demanding pay for both. They were much taken aback when they found that their duplicity had been discovered.

“These Indians are perfectly heartless. They will not render even the smallest aid to each other without payment; and if not to each other, much less to a white man. I got one of them, whom I had previously assisted with his pack, to take me and two of my party over a small creek in his canoe. After putting us across he asked for money, and I gave him half a dollar. Another man stepped up and demanded pay, stating that the canoe was his. To see what the result would be, I gave to him the same amount as to the first. Immediately there were three or four more claimants for the canoe. I dismissed them with a blessing, and made up my mind that I would wade the next creek.

“While paying them I was a little apprehensive of trouble, for they insisted on crowding into my tent, and for myself and the four men who were with me to have attempted to eject them would have been to invite trouble. I am strongly of the opinion that these Indians would have been much more difficult to deal with if they had not known that Commander Newell remained in the inlet to see that I got through without accident.

“While making the survey from the head of tide water I took the azimuths and altitudes of several of the highest peaks around the head of the inlet, in order to locate

them, and obtain an idea of the general height of the peaks in the coast range. As it does not appear to have been done before, I have taken the opportunity of naming all the peaks, the positions of which I fixed in the above way. The names and altitudes appear on my map.

“While going up from the head of canoe navigation on the Taiya River I took the angles of elevation of each station from the preceding one. I would have done this from tide water up, but found many of the courses so short and with so little increase in height that with the instrument I had it was inappreciable. From these angles I have computed the height of the summit of the Taiya Pass,* above the head of canoe navigation, as it appeared to me in June, 1887, and find it to be 3,378 feet. What depth of snow there was I cannot say. The head of canoe navigation I estimate at about 120 feet above tide water. Dr. Dawson gives it as 124 feet.

“I determined the descent from the summit to Lake Lindeman by carrying the aneroid from the lake to the summit and back again, the interval of time from start to return being about eight hours. Taking the mean of the readings at the lake, start and return, and the single reading at the summit, the height of the summit above the lake was found to be 1,237 feet. While making the survey from the summit down to the lake I took the angles of depression of each station from the preceding one, and from these angles I deduced the difference of height, which I found to be 1,354 feet, or 117 feet more than that found

* The distance from the head of Taiya Inlet to the summit of the pass is 15 miles, and the whole length of the pass to Lake Lindeman is 23 miles. Messrs. Healy and Wilson, dealers in general merchandise and miners' supplies at Taiya, have a train of pack horses carrying freight from the head of Lynn Canal to the summit. They hope to be able to take freight through to Lake Lindeman with their horses during the present season.

by the aneroid. This is quite a large difference ; but when we consider the altitude of the place, the sudden changes of temperature, and the atmospheric conditions, it is not more than one might expect.

“ While at Juneau I heard reports of a low pass from the head of Chilkoot Inlet to the head waters of Lewes River. During the time I was at the head of Taiya Inlet I made inquiries regarding it, and found that there was such a pass, but could learn nothing definite about it from either whites or Indians. As Capt. Moore, who accompanied me, was very anxious to go through it, and as the reports of the Taiya Pass indicated that no wagon road or railroad could ever be built through it, while the new pass appeared, from what little knowledge I could get of it, to be much lower and possibly feasible for a wagon road, I determined to send the captain by that way, if I could get an Indian to accompany him. This, I found, would be difficult to do. None of the Chilkoots appeared to know anything of the pass, and I concluded that they wished to keep its existence and condition a secret. The Tagish, or Stick Indians, as the interior Indians are locally called, are afraid to do anything in opposition to the wishes of the Chilkoots ; so it was difficult to get any of them to join Capt. Moore ; but after much talk and encouragement from the whites around, one of them named “ Jim ” was induced to go. He had been through this pass before, and proved reliable and useful. The information obtained from Capt. Moore’s exploration I have incorporated in my plan of the survey from Taiya Inlet, but it is not as complete as I would have liked. I have named this pass “ White Pass,” in honor of the late Hon. Thos. White, Minister of the Interior, under whose authority the expedition was organized. Commencing at Taiya Inlet, about two miles south of its north end, it follows up the valley of the Shkagway River to its source, and thence down the valley of another

river which Capt. Moore reported to empty into the Takone or Windy Arm of Bove Lake (Schwatka). Dr. Dawson says this stream empties into Taku Arm, and in that event Capt. Moore is mistaken. Capt. Moore did not go all the way through to the lake, but assumed from reports he heard from the miners and others that the stream flowed into Windy Arm, and this also was the idea of the Indian "Jim" from what I could gather from his remarks in broken English and Chinook. Capt. Moore estimates the distance from tide water to the summit at about 18 miles, and from the summit to the lake at about 22 to 23 miles. He reports the pass as thickly timbered all the way through.

"The timber line on the south side of the Taiya Pass, as determined by barometer reading, is about 2,300 feet above the sea, while on the north side it is about 1,000 feet below the summit. This large difference is due, I think, to the different conditions in the two places. On the south side the valley is narrow and deep, and the sun cannot produce its full effect. The snow also is much deeper there, owing to the quantity which drifts in from the surrounding mountains. On the north side the surface is sloping, and more exposed to the sun's rays. On the south side the timber is of the class peculiar to the coast, and on the north that peculiar to the interior. The latter would grow at a greater altitude than the coast timber. It is possible that the summit of White Pass is not higher than the timber line on the north of the Taiya Pass, or about 2,500 feet above tide water, and it is possibly even lower than this, as the timber in a valley such as the White Pass would hardly live at the same altitude as on the open slope on the north side.

"Capt. Moore has had considerable experience in building roads in mountainous countries. He considers that this would be an easy route for a wagon road compared with some roads he has seen in British Columbia. Assuming

his distances to be correct, and the height of the pass to be probably about correctly indicated, the grades would not be very steep, and a railroad could easily be carried through if necessary.

“After completing the survey down to the lake, I set about getting my baggage down too. Of all the Indians who came to the summit with packs, only four or five could be induced to remain and pack down to the lake, although I was paying them at the rate of \$4 per hundred pounds. After one trip down only two men remained, and they only in hopes of stealing something. One of them appropriated a pair of boots, and was much surprised to find that he had to pay for them on being settled with. I could not blame them much for not caring to work, as the weather was very disagreeable—it rained or snowed almost continuously. After the Indians left I tried to get down the stuff with the aid of my own men, but it was slavish and unhealthy labor, and after the first trip one of them was laid up with what appeared to be inflammatory rheumatism. The first time the party crossed, the sun was shining brightly, and this brought on snow blindness, the pain of which only those who have suffered from this complaint can realize. I had two sleds with me which were made in Juneau specially for the work of getting over the mountains and down the lakes on the ice. With these I succeeded in bringing about a ton and a-half to the lakes, but found that the time it would take to get all down in this way would seriously interfere with the programme arranged with Dr. Dawson, to say nothing of the suffering of the men and myself, and the liability to sickness which protracted physical exertion under such uncomfortable conditions and continued suffering from snow blindness expose us to. I had with me a white man who lived at the head of the inlet with a Tagish Indian woman. This man had a good deal of influence with the Tagish tribe, of

whom the greater number were then in the neighborhood where he resided, trying to get some odd jobs of work, and I sent him to the head of the inlet to try and induce the Tagish Indians to undertake the transportation, offering them \$5 per hundred pounds. In the meantime Capt. Moore and the Indian "Jim" had rejoined me. I had their assistance for a day or two, and "Jim's" presence aided indirectly in inducing the Indians to come to my relief.

"The Tagish are little more than slaves to the more powerful coast tribes, and are in constant dread of offending them in any way. One of the privileges which the coast tribes claim is the exclusive right to all work on the coast or in its vicinity, and the Tagish are afraid to dispute this claim. When my white man asked the Tagish to come over and pack they objected on the grounds mentioned. After considerable ridicule of their cowardice, and explanation of the fact that they had the exclusive right to all work in their own country, the country on the side of the north side of the coast range being admitted by the coast Indians to belong to the Tagish tribe just as the coast tribes had the privilege of doing all the work on the coast side of the mountains, and that one of their number was already working with me unmolested, and likely to continue so, nine of them came over, and in fear and trembling began to pack down to the lake. After they were at work for a few days some of the Chilkoots came out and also started to work. Soon I had quite a number at work and was getting my stuff down quite fast. But this good fortune was not to continue. Owing to the prevailing wet, cold weather on the mountains, and the difficulty of getting through the soft wet snow, the Indians soon began to quit work for a day or two at a time, and to gamble with one another for the wages already earned. Many of them wanted to be paid in full, but this I posi-

tively refused, knowing that to do so was to have them all apply for their earnings and leave me until necessity compelled them to go to work again. I once for all made them distinctly understand that I would not pay any of them until the whole of the stuff was down. As many of them had already earned from twelve to fifteen dollars each, to lose which was a serious matter to them, they reluctantly resumed work and kept at it until all was delivered. This done, I paid them off, and set about getting my outfit across the lake, which I did with my own party and the two Peterborough canoes which I had with me.

· These two canoes travelled about 3,000 miles by rail and about 1,000 miles by steamship before being brought into service. They did considerable work on Chilkoot and Tagish Inlets, and were then packed over to the head of Lewes River (Lake Lindeman), from where they were used in making the survey of Lewes and Yukon Rivers. In this work they made about 650 landings. They were then transported on sleighs from the boundary on the Yukon to navigable water on the Porcupine.

“ In the spring of 1888 they descended the latter river, heavily loaded, and through much rough water, to the mouth of Bell’s River, and up it to McDougall’s Pass. They were then carried over the pass to Poplar River and were used in going down the latter to Peel River, and thence up Mackenzie River 1,400 miles ; or, exclusive of railway and ship carriage, they were carried about 170 miles and did about 2,500 miles of work for the expedition, making in all about 1,700 landings in no easy manner and going through some very bad water. I left them at Fort Chipewyan in fairly good condition, and, with a little painting, they would go through the same ordeal again.

After getting all my outfit over to the foot of Lake Lindeman I set some of the party to pack it to the head of Lake Bennet.

“I employed the rest of the party in looking for timber to build a boat to carry my outfit of provisions and implements down the river to the vicinity of the international boundary, a distance of about 700 miles. It took several days to find a tree large enough to make plank for the boat I wanted, as the timber around the upper end of the lake is small and scrubby. My boat was finished on the evening of the 11th of July, and on the 12th I started a portion of the party to load it and go ahead with it and the outfit to the canon. They had instructions to examine the canon and, if necessary, to carry a part of the outfit past it—in any case, enough to support the party back to the coast should accident necessitate such procedure. With the rest of the party I started to carry on the survey, which may now be said to have fairly started ahead on the lakes. This proved tedious work, on account of the stormy weather.

“In the summer months there is nearly always a wind blowing in from the coast; it blows down the lakes and produces quite a heavy swell. This would not prevent the canoes going with the decks on, but, as we had to land every mile or so, the rollers breaking on the generally flat beach proved very troublesome. On this account I found I could not average more than ten miles per day on the lakes, little more than half of what could be done on the river.

“The survey was completed to the canon on the 20th of July. There I found the party with the large boat had arrived on the 18th, having carried a part of the supplies past the canon, and were awaiting my arrival to run through it with the rest in the boat. Before doing so, however, I made an examination of the canon. The rapids below it, particularly the last rapid of the series (called the White Horse by the miners), I found would not be safe to run. I sent two men through the canon in one of the canoes to

await the arrival of the boat, and to be ready in case of an accident to pick us up. Every man in the party was supplied with a life-preserver, so that should a casualty occur we would all have floated. Those in the canoe got through all right; but they would not have liked to repeat the trip. They said the canoe jumped about a great deal more than they thought it would, and I had the same experience when going through in the boat.

“The passage through is made in about three minutes, or at the rate of about $12\frac{1}{2}$ miles an hour. If the boat is kept clear of the sides there is not much danger in high water; but in low water there is a rock in the middle of the channel, near the upper end of the cañon, that renders the passage more difficult. I did not see this rock myself, but got my information from some miners I met in the interior, who described it as being about 150 yards down from the head and a little to the west of the middle of the channel. In low water it barely projects above the surface. When I passed through there was no indication of it, either from the bank above or from the boat.

“The distance from the head to the foot of the cañon is five-eighths of a mile. There is a basin about midway in it about 150 yards in diameter. This basin is circular in form, with steep sloping sides about 100 feet high. The lower part of the cañon is much rougher to run through than the upper part, the fall being apparently much greater. The sides are generally perpendicular, about 80 to 100 feet high, and consist of basalt, in some places showing hexagonal columns.

“The White Horse Rapids are about three-eighths of a mile long. They are the most dangerous rapids on the river, and are never run through in boats except by accident. They are confined by low basaltic banks, which, at the foot, suddenly close in and make the channel about 30 yards wide. It is here the danger lies, as there is a

sudden drop and the water rushes through at a tremendous rate, leaping and seething like a cataract. The miners have constructed a portage road on the west side, and put down rollways in some places on which to shove their boats over. They have also made some windlasses with which to haul their boats up hill, notably one at the foot of the cañon. This roadway and windlasses must have cost them many hours of hard labor. Should it ever be necessary, a tramway could be built past the cañon on the east side with no great difficulty. With the exception of the Five Finger Rapids these appear to be the only serious rapids on the whole length of the river.

“ Five Finger Rapids are formed by several islands standing in the channel and backing up the water so much as to raise it about a foot, causing a swell below for a few yards. The islands are composed of conglomerate rock, similar to the cliffs on each side of the river, whence one would infer that there has been a fall here in past ages. For about two miles below the rapids there is a pretty swift current, but not enough to prevent the ascent of a steamboat of moderate power, and the rapids themselves I do not think would present any serious obstacle to the ascent of a good boat. In very high water warping might be required. Six miles below these rapids are what are known as ‘ Rink Rapids.’ This is simply a barrier of rocks, which extends from the westerly side of the river about half way across. Over this barrier there is a ripple which would offer no great obstacle to the descent of a good canoe. On the easterly sides there is no ripple, and the current is smooth and the water apparently deep. I tried with a 6 foot paddle, but could not reach the bottom.

“ On the 11th of August I met a party of miners coming out who had passed Stewart River a few days before. They saw no sign of Dr. Dawson having been there. This was welcome news for me, as I expected he would have

reached that point long before I arrived, on account of the many delays I had met with on the coast range. These miners also gave me the pleasant news that the story told at the coast about the fight with the Indians at Stewart River was false, and stated substantially what I have already repeated concerning it. The same evening I met more miners on their way out, and the next day met three boats, each containing four men. In the crew of one of them was a son of Capt. Moore, from whom the captain got such information as induced him to turn back and accompany them out.

“Next day, the 13th, I got to the mouth of the Pelly, and found that Dr. Dawson had arrived there on the 11th. The doctor also had experienced many delays, and had heard the same story of the Indian uprising in the interior. I was pleased to find that he was in no immediate want of provisions, the fear of which had caused me a great deal of uneasiness on the way down the river, as it was arranged between us in Victoria that I was to take with me provisions for his party to do them until their return to the coast. The doctor was so much behind the time arranged to meet me that he determined to start for the coast at once. I therefore set about making a short report and plan of my survey to this point; and, as I was not likely to get another opportunity of writing at such length for a year, I applied myself to a correspondence designed to satisfy my friends and acquaintances for the ensuing twelve months. This necessitated three days' hard work.

“On the morning of the 17th the doctor left for the outside world, leaving me with a feeling of loneliness that only those who have experienced it can realize. I remained at the mouth of the Pelly during the next day taking magnetic and astronomical observations, and making some measurements of the river. On the 19th I resumed the survey and reached White River on the 25th. Here I spent

most of a day trying to ascend this river, but found it impracticable, on account of the swift current and shallow and very muddy water. The water is so muddy that it is impossible to see through one-eighth of an inch of it. The current is very strong, probably eight miles or more per hour, and the numerous bars in the bed are constantly changing place. After trying for several hours, the base men succeeded in doing about half a mile only, and I came to the conclusion that it was useless to try to get up this stream to the boundary with canoes. Had it proved feasible I had intended making a survey of this stream to the boundary, to discover more especially the facilities it offered for the transport of supplies in the event of a survey of the International Boundary being undertaken.

“I reached Stewart River on the 26th. Here I remained a day taking magnetic observations, and getting information from a miner, named McDonald, about the country up that river. McDonald had spent the summer up the river prospecting and exploring. His information will be given in detail further on.

“Fort Reliance was reached on the 1st of September, and Forty Mile River (Cone-Hill River of Schwatka) on the 7th. In the interval between Fort Reliance and Forty Mile River there were several days lost by rain.

“At Forty Mile River I made some arrangements with the traders there (Messrs. Harper & McQuestion) about supplies during the winter, and about getting Indians to assist me in crossing from the Yukon to the head of the Porcupine, or perhaps on to the Peel River. I then made a survey of the Forty Mile River up to the canon. I found the canon would be difficult of ascent, and dangerous to descend, and therefore, concluded to defer further operations until the winter, and until after I had determined the longitude of my winter post near the boundary, when I would be in a much better position to locate the

intersection of the International Boundary with this river, a point important to determine on account of the number and richness of the mining claims on the river.

“I left Forty Mile River for the boundary line between Alaska and the Northwest Territories on the 12th September, and finished the survey to that point on the 14th. I then spent two days in examining the valley of the river in the vicinity of the boundary to get the most extensive view of the horizon possible, and to find a tree large enough to serve for a transit stand.

“Before leaving Toronto I got Mr. Foster to make large brass plates with V's on them, which could be screwed firmly to a stump, and thus be made to serve as a transit stand. I required a stump at least 22 inches in diameter to make a base large enough for the plates when properly placed for the transit. In a search which covered about four miles of the river bank, on both sides, I found only one tree as large as 18 inches. I mention this fact to give an idea of the size of the trees along the river in this vicinity. I had this stump enlarged by firmly fixing pieces on the sides so as to bring it up to the requisite size. This done, I built around the stump a small transit house of the ordinary form and then mounted and adjusted my transit. Meanwhile, most of the party were busy preparing our winter quarters and building a magnetic observatory. As I had been led to expect extremely low temperatures during the winter, I adopted precautionary measures, so as to be as comfortable as circumstances would permit during our stay there.

DESCRIPTION OF THE YUKON, ITS AFFLUENT STREAMS, AND THE ADJACENT COUNTRY.

“I will now give, from my own observation and from information received, a more detailed description of the

Lewes River, its affluent streams, and the resources of the adjacent country.

“For the purpose of navigation a description of the Lewes River begins at the head of Lake Bennet. Above that point, and between it and Lake Lindeman, there is only about three-quarters of a mile of river, which is not more than fifty or sixty yards wide, and two or three feet deep, and is so swift and rough that navigation is out of the question.

“Lake Lindeman is about five miles long and half a mile wide. It is deep enough for all ordinary purposes. Lake Bennet* is twenty-six and a quarter miles long, for the upper fourteen of which it is about half a mile wide. About midway in its length an arm comes in from the west, which Schwatka appears to have mistaken for a river, and named Wheaton River. This arm is wider than the other arm down to that point, and is reported by Indians to be longer and heading in a glacier which lies in the pass at the head of Chilkoot Inlet. This arm is, as far as seen, surrounded by high mountains, apparently much higher than those on the arm we travelled down. Below the junction of the two arms the lake is about one and a half miles wide, with deep water. Above the forks the water of the east branch is muddy. This is caused by the streams from the numerous glaciers on the head of the tributaries of Lake Lindeman.

“A stream which flows into Lake Bennet at the southwest corner is also very dirty, and has shoaled quite a large portion of the lake at its mouth. The beach at the lower end of this lake is comparatively flat and the water shoal.

* A small saw-mill has been erected at the head of Lake Bennet; lumber for boat building sells at \$100 per M. Boats 25 feet long and 5 feet beam are \$60 each. Last year the ice broke up in the lake on the 12th June, but this season is earlier and the boats are expected to go down the lake about the 1st of June.

A deep, wide valley extends northwards from the north end of the lake, apparently reaching to the canon, or a short distance above it. This may have been originally a course for the waters of the river. The bottom of the valley is wide and sandy, and covered with scrubby timber, principally poplar and pitch-pine. The waters of the lake empty at the extreme north-east angle through a channel not more than one hundred yards wide, which soon expands into what Schwatka called Lake Nares.* Through this narrow channel there is quite a current, and more than 7 feet of water, as a 6 foot paddle and a foot of arm added to its length did not reach the bottom.

“The hills at the upper end of Lake Lindeman rise abruptly from the water’s edge. At the lower end they are neither so steep nor so high.

“Lake Nares is only two and a half miles long, and its greatest width is about a mile ; it is not deep, but is navigable for boats drawing 5 or 6 feet of water ; it is separated from Lake Bennet by a shallow sandy point of not more than 200 yards in length.

“No streams of any consequence empty into either of these lakes. A small river flows into Lake Bennet on the west side, a short distance north of the fork, and another at the extreme north-west angle, but neither of them is of any consequence in a navigable sense.

“Lake Nares flows through a narrow curved channel into Bove Lake (Schwatka). This channel is not more than 600 or 700 yards long, and the water in it appears to be sufficiently deep for boats that could navigate the lake. The land between the lakes along this channel is low, swampy, and covered with willows, and, at the stage in which I saw it, did not rise more than 3 feet above the water. The hills on the southwest side slope up easily, and are not

*The connecting waters between Lake Bennet and Tagish Lake constitute what is now called Caribou Crossing.

high ; on the north side the deep valley already referred to borders it ; and on the east side the mountains rise abruptly from the lake shore.

“ Bove Lake (called Tagish Lake by Dr. Dawson) is about a mile wide for the first two miles of its length, when it is joined by what the miners have called the Windy Arm. One of the Tagish Indians informed me they called it Takone Lake. Here the lake expands to a width of about two miles for a distance of some three miles, when it suddenly narrows to about half a mile for a distance of a little over a mile, after which it widens again to about a mile and a half or more.

“ Ten miles from the head of the lake it is joined by the Taku Arm from the south. This arm must be of considerable length, as it can be seen for a long distance, and its valley can be traced through the mountains much farther than the lake itself can be seen. It is apparently over a mile wide at its mouth or junction.

“ Dr. Dawson includes Bove Lake and these two arms under the common name of Tagish Lake. This is much more simple and comprehensive than the various names given them by travellers. These waters collectively are the fishing and hunting grounds of the Tagish Indians, and as they are really one body of water, there is no reason why they should not be all included under one name.

“ From the junction with the Taku Arm to the north end of the lake the distance is about six miles, the greater part being over two miles wide. The west side is very flat and shallow, so much so that it was impossible in many places to get our canoes to the shore, and quite a distance out in the lake there was not more than 5 feet of water. The members of my party who were in charge of the large boat and outfit, went down the east side of the lake and reported the depth about the same as I found on the west side, with many large rocks. They passed through it in the night in

a rainstorm, and were much alarmed for the safety of the boat and provisions. It would appear that this part of the lake requires some improvement to make it in keeping with the rest of the water system with which it is connected.

“Where the river debouches from it, it is about 150 yards wide, and for a short distance not more than 5 or 6 feet deep. The depth is, however, soon increased to 10 feet or more, and so continues down to what Schwatka calls Marsh Lake. The miners call it Mud Lake, but on this name they do not appear to be agreed, many of them calling the lower part of Tagish or Bove Lake “Mud Lake,” on account of its shallowness and flat muddy shores, as seen along the west side, the side nearly always travelled, as it is more sheltered from the prevailing southerly winds. The term “Mud Lake” is, however, not applicable to this lake, as only a comparatively small part of it is shallow or muddy; and it is nearly as inapplicable to Marsh Lake, as the latter is not markedly muddy along the west side, and from the appearance of the east shore one would not judge it to be so, as the banks appear to be high and gravelly.

“Marsh Lake is a little over nineteen miles long, and averages about two miles in width. I tried to determine the width of it as I went along with my survey, by taking azimuths of points on the eastern shore from different stations of the survey; but in only one case did I succeed, as there were no prominent marks on that shore which could be identified from more than one place. The piece of river connecting Tagish and Marsh Lakes is about five miles long, and averages 150 to 200 yards in width, and, as already mentioned, is deep, except for a short distance at the head. On it are situated the only Indian houses to be found in the interior with any pretension to skill in construction. They show much more labor and imitateness than one knowing anything about the Indian in his native state

would expect. The plan is evidently taken from the Indian houses on the coast, which appear to me to be a poor copy of the houses which the Hudson's Bay Company's servants build around their trading posts. These houses do not appear to have been used for some time past, and are almost in ruins. The Tagish Indians are now generally on the coast, as they find it much easier to live there than in their own country. As a matter of fact, what they make in their own country is taken from them by the Coast Indians, so that there is little inducement for them to remain.

“The Lewes River, where it leaves Marsh Lake, is about 200 yards wide, and averages this width as far as the cañon. I did not try to find bottom anywhere as I went along, except where I had reason to think it shallow, and there I always tried with my paddle. I did not anywhere find bottom with this, which shows that there is no part of this stretch of the river with less than six feet of water at medium height, at which stage it appeared to me the river was at that time.

“From the head of Lake Bennet to the cañon the corrected distance is ninety-five miles, all of which is navigable for boats drawing 5 feet or more. Add to this the westerly arm of Lake Bennet, and the Takone or Windy Arm of Tagish Lake, each about fifteen miles in length, and the Taku Arm of the latter lake, of unknown length, but probably not less than thirty miles, and we have a stretch of water of upwards of one hundred miles in length, all easily navigable; and, as has been pointed out, easily connected with Taiya Inlet through the White Pass.

“No streams of any importance enter any of these lakes so far as I know. A river, called by Schwatka “McClintock River,” enters Marsh Lake at the lower end from the east. It occupies a large valley, as seen from the westerly side of the lake, but the stream is apparently unimportant.

Another small stream, apparently only a creek, enters the south-east angle of the lake. It is not probable that any stream coming from the east side of the lake is of importance, as the strip of country between the Lewes and Teslin-too is not more than than thirty or forty miles in width at this point.

“The Taku Arm of Tagish Lake, is, so far, with the exception of reports from Indians, unknown ; but it is equally improbable that any river of importance enters it, as it is so near the source of the waters flowing northwards. However, this is a question that can only be decided by a proper exploration. The cañon I have already described and will only add that it is five-eighths of a mile long, about 100 feet wide, with perpendicular banks of basaltic rock from 60 to 100 feet high.

“Below the cañon proper there is a stretch of rapids for about a mile ; then about half a mile of smooth water, following which are the White Horse Rapids, which are three-eighths of a mile long, and unsafe for boats.

“The total fall in the cañon and succeeding rapids was measured and found to be 32 feet. Were it ever necessary to make this part of the river navigable it will be no easy task to overcome the obstacles at this point ; but a tram or railway could, with very little difficulty, be constructed along the east side of the river past the cañon.

“For some distance below the White Horse Rapids the current is swift and the river wide, with many gravel bars. The reach between these rapids and Lake Labarge, a distance of twenty-seven and a half miles, is all smooth water, with a strong current. The average width is about 150 yards. There is no impediment to navigation other than the swift current, and this is no stronger than on the lower part of the river, which is already navigated ; nor is it worse than on the Saskatchewan and Red Rivers in the more eastern part of our territory.

“About midway in this stretch the Tahkeena River* joins the Lewes. This river is, apparently, about half the size of the latter. Its waters are muddy, indicating the passage through a clayey district. I got some indefinite information about this river from an Indian who happened to meet me just below its mouth, but I could not readily make him understand me, and his replies were a compound of Chinook, Tagish, and signs, and therefore largely unintelligible. From what I could understand with any certainty, the river was easy to descend, there being no bad rapids, and it came out of a lake much larger than any I had yet passed.

“Here I may remark that I have invariably found it difficult to get reliable or definite information from Indians. The reasons for this are many. Most of the Indians it has been my lot to meet are expecting to make something, and consequently are very chary about doing or saying anything unless they think they will be well rewarded for it. They are naturally very suspicious of strangers, and it takes some time, and some knowledge of their language, to overcome this suspicion and gain their confidence. If you begin at once to ask questions about their country, without previously having them understand that you have no unfriendly motive in doing so, they become alarmed, and although you may not meet with a positive refusal to answer questions, you make very little progress in getting desired information. On the other hand I have met cases where, either through fear or hope of reward, they were only too anxious to impart all they knew or had heard, and even more if they thought it would please their hearer. I need hardly say that such information is often not at all in accordance with the facts.

*The Tahkeena was formerly much used by the Chilkat Indians as a means of reaching the interior, but never by the miners owing to the distance from the sea to its head.

“I have several times found that some act of mine when in their presence has aroused either their fear, superstition or cupidity. As an instance : on the Bell River I met some Indians coming down stream as I was going up. We were ashore at the time, and invited them to join us. They started to come in, but very slowly, and all the time kept a watchful eye on us. I noticed that my double-barrelled shot gun was lying at my feet, loaded, and picked it up to unload it, as I knew they would be handling it after landing. This alarmed them so much that it was some time before they came in, and I don't think they would have come ashore at all had they not heard that a party of white men of whom we answered the description, were coming through that way (they had learned this from the Hudson's Bay Company's officers), and concluded we were the party described to them. After drinking some of our tea, and getting a supply for themselves, they became quite friendly and communicative.

“I cite these as instances of what one meets with who comes in contact with Indians, and of how trifles affect them. A sojourn of two or three days with them and the assistance of a common friend would do much to disabuse them of such ideas, but when you have no such aids you must not expect to make much progress.

“Lake Labarge is thirty-one miles long. In the upper thirteen it varies from three to four miles in width ; it then narrows to about two miles for a distance of seven miles, when it begins to widen again, and gradually expands to about two and a-half or three miles, the lower six miles of it maintaining the latter width. The survey was carried along the western shore, and while so engaged I determined the width of the upper wide part by triangulation at two points, the width of the narrow middle part at three points, and the width of the lower part at three points. Dr. Dawson on his way out made a track survey of the

eastern shore. The western shore is irregular in many places, being indented by large bays, especially at the upper and lower ends. These bays are, as a rule, shallow, more especially those at the lower end.

“Just above where the lake narrows in the middle there is a large island. It is three and a-half miles long and about half a mile in width. It is shown on Schwatka's map as a peninsula, and called by him Richtofen Rocks. How he came to think it a peninsula I cannot understand, as it is well out in the lake; the nearest point of it to the western shore is upwards of half a mile distant, and the extreme width of the lake here is not more than five miles, which includes the depth of the deepest bays on the western side. It is therefore difficult to understand that he did not see it as an island. The upper half of this island is gravelly, and does not rise very high above the lake. The lower end is rocky and high, the rock being of a bright red color.

“At the lower end of the lake there is a large valley extending northwards, which has evidently at one time been the outlet of the lake. Dr. Dawson has noted it and its peculiarities. His remarks regarding it will be found on pages 156-160 of his report entitled ‘Yukon District and Northern portion of British Columbia,’ published in 1889.

“The width of the Lewes River as it leaves the lake is the same as at its entrance, about 200 yards. Its waters when I was there were murky. This is caused by the action of the waves on the shore along the lower end of the lake. The water at the upper end and at the middle of the lake is quite clear, so much so that the bottom can be distinctly seen at a depth of 6 or 7 feet. The wind blows almost constantly down this lake, and in a high wind it gets very rough. The miners complain of much detention owing to this cause, and certainly I cannot complain of a lack of wind while I was on the lake. This lake was named after one Mike Labarge, who was engaged by the Western Union

Telegraph Company, exploring the river and adjacent country for the purpose of connecting Europe and America by telegraph through British Columbia, and Alaska, and across Behring Strait to Asia, and thence to Europe. This exploration took place in 1867, but it does not appear that Labarge then, nor for some years after, saw the lake called by his name. The successful laying of the Atlantic cable in 1866 put a stop to this project, and the exploring parties sent out were recalled as soon as word could be got to them. It seems that Labarge had got up as far as the Pelly before he received his recall; he had heard something of a large lake some distance further up the river, and afterwards spoke of it to some traders and miners who called it after him.

“After leaving Lake Labarge the river, for a distance of about five miles, preserves a generally uniform width and an easy current of about four miles per hour. It then makes a short turn round a low gravel point, and flows in exactly the opposite of its general course for a mile when it again turns sharply to its general direction. The current around this curve and for some distance below it—in all four or five miles—is very swift. I timed it in several places and found it from six to seven miles an hour. It then moderates to four or five, and continues so until the Teslintoo River is reached, thirty-one and seven tenths miles from Lake Labarge. The average width of this part of the river is about 150 yards, and the depth is sufficient to afford passage for boats drawing at least 5 feet. It is, as a rule, crooked, and consequently a little difficult to navigate.

“The Teslintoo* was so called by Dr. Dawson—this, ac-

*The limited amount of prospecting that has been done on this river is said to be very satisfactory, fine gold having been found in all parts of the river. The lack of supplies is the great drawback to its development, and this will not be overcome to any ex-

ording to information obtained by him, being the Indian name. It is called by the miners 'Hootalinkwa' or Hotalinqua, and was called by Schwatka, who appears to have bestowed no other attention to it, the Newberry, although it is apparently much larger than the Lewes. This was so apparent that in my interim reports I stated it as a fact. Owing to circumstances already narrated, I had not time while at the mouth to make any measurement to determine the relative size of the rivers; but on his way out Dr. Dawson made these measurements, and his report, before referred to, gives the following values of the cross sections of each stream: Lewes, 3,015 feet; Teslinto, 3,809 feet. In the same connection he states that the Lewes appeared to be about 1 foot above its lowest summer level, while the Teslinto appeared to be at its lowest level. Assuming this to be so, and taking his widths as our data, it would reduce his cross section of the Lewes to 2,595 feet. Owing, however, to the current in the Lewes, as determined by Dr. Dawson, being just double that of the Teslinto, the figures being 5.68 and 2.88 miles per hour, respectively, the discharge of the Lewes, taking these figures again in 18,644 feet, and of the Teslinto 11,436 feet. To reduce the Lewes to its lowest level the doctor says would make its discharge 15,600 feet.

“ The water of the Teslinto is of a dark brown color, similar in appearance to the Ottawa River water, and a little turbid. Notwithstanding the difference of volume of distant until by some means heavy freight can be brought over the coast range to the head of the river. Indeed, owing to the difficulties attending access and transportation, the great drawback to the entire Yukon district at present is the want of heavy mining machinery and the scarcity of supplies. The government being aware of the requirements and possibilities of the country, has undertaken the task of making preliminary surveys for trails and railroads, and no doubt in the near future the avenue for better and quicker transportation facilities will be opened up.

charge, the Teslintoo changes completely the character of the river below the junction, and a person coming up the river would, at the forks, unhesitatingly pronounce the Teslintoo the main stream. The water of the Lewes is blue in color, and at the time I speak of was somewhat dirty—not enough so, however, to prevent one seeing to a depth of two or three feet.

“ At the junction of the Lewes and Teslintoo I met two or three families of the Indians who hunt in the vicinity. One of them could speak a little Chinook. As I had two men with me who understood his jargon perfectly, with their assistance I tried to get some information from him about the river. He told me the river was easy to ascend, and presented the same appearance eight days journey up as at the mouth ; then a lake was reached, which took one day to cross ; the river was then followed again for half a day to another lake, which took two days to traverse : into this lake emptied a stream which they used as a highway to the coast, passing by way of the Taku River. He said it took four days when they had loads to carry, from the head of canoe navigation on the Teslintoo to salt water on the Taku Inlet ; but when they come light they take only one to two days. He spoke also of a stream entering the large lake from the east which came from a distance ; but they did not seem to know much about it, and considered it outside their country. If their time intervals are approximately accurate, they mean that there are about 200 miles of good river to the first lake, as they ought easily to make 25 miles a day on the river as I saw it. The lake takes one day to traverse, and is at least 25 miles long, followed by say 12 of river, which brings us to the large lake, which takes two days to cross, say 50 or 60 more—in all about 292 miles—say 300 to the head of canoe navigation ; while the distance from the head of Lake Bennet to the junction is only 188. Assuming the course of the Teslintoo to be nearly south

(it is a little to the east of it), and throwing out every fourth mile for bends, the remainder gives us in arc three degrees and a quarter of latitude, which, deducted from $61^{\circ} 40'$, the latitude of the junction, gives us $58^{\circ} 25'$, or nearly the latitude of Juneau.

“ To make sure that I understood the Indian aright, and that he knew what he was speaking about, I got him to sketch the river and lake, as he described them, on the sand, and repeat the same several times.

“ I afterwards met Mr. T. Boswell, his brother, and another miner, who had spent most of the summer on the river prospecting, and from them I gathered the following :

“ The distance to the first, and only lake which they saw, they put at 175 miles, and the lake itself they call at least 150 miles long, as it took them four days to row in a light boat from end to end. The portage to the sea they did not appear to know anything about, but describe a large bay on the east side of the lake, into which a river of considerable size entered. This river occupies a wide valley, surrounded by high mountains. They thought this river must head near Liard River. This account differs materially from that given by the Indian, and to put them on their guard, I told them what he had told me, but they still persisted in their story, which I find differs a good deal from the account they gave Dr. Dawson, as incorporated in his report.

“ Many years ago, sixteen I think, a man named Monroe prospected up the Taku and learned from the Indians something of a large lake not far from that river. He crossed over and found it, and spent some time in prospecting, and then recrossed to the sea. This man had been at Forty Mile River, and I heard from the miners there his account of the appearance of the lake, which amounted generally to this : The Boswells did not know anything about it.” It was unfortunate the Boswells did not remain

at Forty Mile all winter, as by a comparison of recollections they might have arrived at some correct conclusion.

“ Conflicting as these descriptions are, one thing is certain : this branch, if it has not the greater discharge, is the longer and more important of the two, and offers easy and uninterrupted navigation for more than double the distance which the Lewes does, the cañon being only ninety miles above the mouth of the Teslinto. The Boswells reported it as containing much more useful timber than the Lewes, which indeed one would infer from its lower altitude.

“ Assuming this as the main river, and adding its length to the Lewes-Yukon below the junction, gives upward of 2,200 miles of river, fully two-thirds of which runs through a very mountainous country, without an impediment to navigation.

“ Some indefinite information was obtained as to the position of this river in the neighborhood of Marsh Lake tending to show that the distance between them was only about thirty or forty miles.

“ Between the Teslinto and the Big Salmon, so called by the miners, or D’Abbadie by Schwatka, the distance is thirty-three and a-half miles, in which the Lewes preserves a generally uniform width and current. For a few miles below the Teslinto it is a little over the ordinary width, but then contracts to about two hundred yards which it maintains with little variation. The current is generally from four to five miles per hour.

“ The Big Salmon I found to be about one hundred yards wide near the mouth, the depth not more than four or five feet, and the current, so far as could be seen, sluggish. None of the miners I met could give me any information concerning this stream ; but Dr. Dawson was more fortunate, and met a man who had spent most of the summer of 1887 prospecting on it. His opinion was that it might be navi-

gable for small stern-wheel steamers for many miles. The valley, as seen from the mouth, is wide, and gives one the impression of being occupied by a much more important stream. Looking up it, in the distance could be seen many high peaks covered with snow. As the date was August it is likely they are always so covered, which would make their probable altitude above the river 5,000 feet or more.

“ Dr. Dawson, in his report, incorporates fully the notes obtained from the miners. I will trespass so far on these as to say that they called the distance to a small lake near the head of the river, 190 miles from the mouth. This lake was estimated to be four miles in length ; another lake about 12 miles above this was estimated to be twenty-four miles long, and its upper end distant only about eight miles from the Teslinto. These distances, if correct, make this river much more important than a casual glance at it would indicate ; this, however, will be more fully spoken of under its proper head.

“ Just below the Big Salmon the Lewes takes a bend of nearly a right angle. Its course from the junction with the Tahkeena to this point is generally a little east of north ; at this point it turns to nearly west for some distance. Its course between here and its confluence with the Pelly is north-west, and, I may add, it preserves this general direction down to the confluence with the Porcupine. The river also changes in another respect ; it is generally wider, and often expands into what might be called lakes, in which are islands. Some of the lakes are of considerable length, and well timbered.

“ To determine which channel is the main one, that is, which carries the greatest volume of water, or is best available for the purposes of navigation, among these islands, would require more time than I could devote to it on my way down ; consequently I cannot say more than that I have

no reason to doubt that a channel giving six feet or more of water could easily be found. Whenever, in the main channel, I had reason to think the water shallow, I tried it with my paddle, but always failed to find bottom, which gives upward of six feet. Of course I often found less than this, but not in what I considered the main channel.

“Thirty-six and a quarter miles below the Big Salmon, the Little Salmon—the Daly of Schwatka—enters the Lewes. This river is about 60 yards wide at the mouth, and not more than two or three feet in depth. The water is clear and of a brownish hue; there is not much current at the mouth, nor as far as can be seen up the stream. The valley which, from the mouth, does not appear extensive, bears northeast for some distance, when it appears to turn more to the east. Six or seven miles up, and apparently on the north side, some high cliffs of red rock, apparently granite, can be seen. It is said that some miners have prospected this stream, but I could learn nothing definite about it.

“Lewes River makes a turn here to the southwest, and runs in that direction six miles, when it again turns to the northwest for seven miles, and then makes a short, sharp turn to the south and west around a low sandy point, which will, at some day in the near future, be cut through by the current, which will shorten the river three or four miles.

“Eight miles below Little Salmon River, a large rock called the Eagle’s Nest, stands up in a gravel slope on the easterly bank of the river. It rises about five hundred feet above the river, and is composed of a light gray stone. What the character of this rock is I could not observe, as I saw it only from the river, which is about a quarter of a mile distant. On the westerly side of the river there are two or three other isolated masses of apparently the same kind of rock. One of them might be appropriately

called a mountain ; it is south-west from the Eagle's Nest and distant from it about three miles.

“ Thirty-two miles below Eagle's Nest Rock, Nordenskiold River enters from the west. It is an unimportant stream, being not more than one hundred and twenty feet wide at the mouth, and only a few inches deep. The valley, as far as can be seen, is not extensive, and, being very crooked, it is hard to tell what its general direction is.

“ The Lewes, between the Little Salmon and the Nordenskiold, maintains a width of from two to three hundred yards, with an occasional expansion where there are islands. It is serpentine in its course most of the way, and where the Nordenskiold joins it is very crooked, running several times under a hill, named by Schwatka Tantalus Butte, and in other places leaving it, for a distance of eight miles. The distance across from point to point is only half a mile.

“ Below this to Five Finger Rapids, so-called from the fact that five large masses of rock stand in mid-channel, the river assumes its ordinary straightness and width, with a current from four to five miles per hour. I have already described Five Finger Rapids ; I do not think they will prove anything more than a slight obstruction in the navigation of the river. A boat of ordinary power would probably have to help herself up with windlass and line in high water.

“ Below the rapids, for about two miles, the current is strong—probably six miles per hour—but the water seems to be deep enough for any boat that is likely to navigate it.

“ Six miles below this, as already noticed, Rink Rapids are situated. They are of no great importance, the westerly half of the stream only being obstructed. The easterly half is not in any way affected, the current being smooth and the water deep.

“ Below Five Finger Rapids about two miles a small

stream enters from the east. It is called by Dr. Dawson Tatshun River. It is not more than 30 or 40 feet wide at the mouth, and contains only a little clear, brownish water. Here I met the only Indians seen on the river between Teslintoo and Stewart Rivers. They were engaged in catching salmon at the mouth of the Tatshun, and were the poorest and most unintelligent Indians it has ever been my lot to meet. It is needless to say that none of our party understood anything they said, as they could not speak a word of any language but their own. I tried by signs to get some information from them about the stream they were fishing in, but failed. I tried in the same way to learn if there were any more Indians in the vicinity, but again utterly failed. I then tried by signs to find out how many days it took to go down to Pelly River, but although I have never known these signs to fail in eliciting information in any other part of the territory, they did not understand. They appeared to be alarmed by our presence; and, as we had not yet been assured as to the rumor concerning the trouble between the miners and Indians, we felt a little apprehensive, but being able to learn nothing from them we had to put our fears aside and proceed blindly.

“Between Five Finger Rapids and Pelly River, fifty-eight and a half-miles, no streams of any importance enter the Lewes; in fact, with the exception of the Tatshun, it may be said that none at all enter.

“About a mile below Rink Rapids the river spreads out into a lake-like expanse, with many islands; this continues for about three miles, when it contracts to something like the usual width; but bars and small islands are very numerous all the way to Pelly River. About five miles above Pelly River there is another lake-like expanse filled with islands. The river here for three or four miles is nearly a mile wide, and so numerous and close are the

islands that it is impossible to tell when floating among them where the shores of the river are. The current, too, is swift, leading one to suppose the water shallow; but I think even here a channel deep enough for such boats as will navigate this part of the river can be found. Schwatka named this group of islands "Ingersoll Islands."

"At the mouth of the Pelly the Lewes is about half a mile wide, and here too there are many islands, but not in groups as at Ingersoll Islands.

"About a mile below the Pelly, just at the ruins of Fort Selkirk, the Yukon was found to be 565 yards wide; about two-thirds being ten feet deep, with a current of about four and three-quarter miles per hour; the remaining third was more than half taken up by a bar, and the current between it and the south shore was very slack.

"Pelly River at its mouth is about two hundred yards wide, and continues this width as far up as could be seen. Dr. Dawson made a survey and examination of this river, which will be found in his report already cited, "Yukon District and Northern British Columbia."

"Just here for a short distance the course of the Yukon is nearly west, and on the south side, about a mile below the mouth of the Lewes, stands all that remains of the only trading post ever built by white men in the district. This post was established by Robert Campbell, for the Hudson's Bay Company in the summer of 1848. It was first built on the point of land between the two rivers, but this location proving untenable on account of flooding by ice jams in the spring, it was, in the season of 1852, moved across the river to where the ruins now stand. It appears that the houses composing the post were not finished when the Indians from the coast on Chilkat and Chilkoot Inlets came down the river to put a stop to the competitive trade which Mr. Campbell had inaugurated, and which they found to seriously interfere with their profits. Their method of trade

appears to have been then pretty much as it is now—very onesided. What they found it convenient to take by force they took, and what it was convenient to pay for at their own price they paid for.

“Rumors had reached the post that the coast Indians contemplated such a raid, and in consequence the native Indians in the vicinity remained about nearly all summer. Unfortunately, they went away for a short time, and during their absence the coast Indians arrived in the early morning, and surprised Mr. Campbell in bed. They were not at all rough with him, but gave him the privilege of leaving the place within twenty-four hours, after which he was informed that he was liable to be shot if seen by them in the locality. They then pillaged the place and set fire to it, leaving nothing but the remains of the two chimneys which are still standing. This raid and capture took place on the 1st August, 1852.

“Mr. Campbell dropped down the river, and met some of the local Indians who returned with him, but the robbers had made their escape. I have heard that the local Indians wished to pursue and overtake them, but to this Mr. Campbell would not consent. Had they done so it is probable not many of the raiders would have escaped, as the superior local knowledge of the natives would have given them an advantage difficult to estimate, and the confidence and spirit derived from the aid and presence of a white man or two would be worth much in such a conflict.

“Mr. Campbell went on down the river until he met the outfit for his post on its way up from Fort Yukon, which he turned back. He then ascended the Pelly, crossed to the Liard, and reached Fort Simpson, on the Mackenzie, late in October.

“Mr. Campbell's first visit to the site of Fort Selkirk was made in 1840, under instructions from Sir George

Simpson, then Governor of the Hudson's Bay Company. He crossed from the head waters of the Liard to the waters of the Pelly. It appears the Pelly, where he struck it, was a stream of considerable size, for he speaks of its appearance when he first saw it from 'Pelly Banks,' the name given the bank from which he first beheld it, as a 'splendid river in the distance.' In June, 1843, he descended the Pelly to its confluence with the larger stream, which he named the 'Lewes.' Here he found many families of the native Indians—'Wood Indians,' he called them. These people conveyed to him, as best they could by word and sign, the dangers that would attend a further descent of the river, representing that the country below theirs was inhabited by a tribe of fierce cannibals, who would assuredly kill and eat them. This so terrified his men that he had to return by the way he came, pursued, as he afterwards learned, by the Indians, who would have murdered himself and party had they got a favorable opportunity. Thus it was not until 1850 that he could establish, what he says he all along believed, 'that the Pelly and Yukon were identical.' This he did by descending the river to where the Porcupine joins it, and where in 1847 Fort Yukon was established by Mr. A. H. Murray for the Hudson's Bay Company.

“With reference to the tales told him by the Indians of bad people outside of their country, I may say that Mackenzie tells pretty much the same story of the Indians on the Mackenzie when he discovered and explored that river in 1789. He had the advantage of having Indians along with him whose language was radically the same as that of the people he was coming among, and his statements are more explicit and detailed. Everywhere he came in contact with them they manifested, first, dread of himself and party, and when friendship and confidence were established they nearly always tried to detain him by

representing the people in the direction he was going as unnaturally bloodthirsty and cruel, sometimes asserting the existence of monsters with supernatural powers, as at Manitou Island, a few miles below the present Fort Good Hope, and the people on a very large river far to the west of the Mackenzie, probably the Yukon, they described to him as monsters in size, power and cruelty.

“In our own time, after the intercourse that there has been between them and the whites, more than a suspicion of such unknown, cruel people lurks in the minds of many of the Indians. It would be futile for me to try to ascribe an origin for these fears, my knowledge of their language and idiosyncrasies being so limited.

“Nothing more was ever done in the vicinity of Fort Selkirk * by the Hudson’s Bay Company after these events, and in 1869 the Company was ordered by Capt. Charles W. Raymond, who represented the United States Government, to evacuate the post at Fort Yukon, he having found that it was west of the 141st meridian. The post was occupied by the Company, however, for some time after the receipt of this order, and until Rampart House was built, which was intended to be on British territory, and to take the trade previously done at Fort Yukon.

“Under present conditions the Company cannot very well compete with the Alaska Commercial Company, whose agents do the only trade in the district,† and they appear to have abandoned—for the present at least—all

* This is now a winter port for steamboats of the North American Transportation and Trading Company, plying the Yukon and its tributaries. There is also a trading post here owned by Harper & Ladue.

† Since the date of this report the North American Transportation and Trading Company, better known in the Yukon valley as “Captain Healy’s Company,” has established a number of posts on the river.

attempt to do any trade nearer to it than Rampart House to which point, notwithstanding the distance and difficulties in the way, many of the Indians on the Yukon make a trip every two or three years to procure goods in exchange for their furs. The clothing and blankets brought in by the Hudson's Bay Company they claim are much better than those traded on their own river by the Americans. Those of them that I saw who had any English blankets exhibited them with pride, and exclaimed 'good.' They point to an American blanket in contempt, with the remark 'no good,' and speak of their clothing in the same way.

"On many maps of Alaska a place named 'Reed's House' is shown on or near the upper waters of Stewart River. I made enquiries of all whom I thought likely to know anything concerning this post, but failed to elicit any information showing that there ever had been such a place. I enquired of Mr. Reid, who was in the Company's service with Mr. Campbell at Fort Selkirk, and after whom I thought, possibly, the place had been called, but he told me he knew of no such post, but that there was a small lake at some distance in a northerly direction from Fort Selkirk, where fish were procured. A sort of shelter had been made at that point for the fishermen, and a few furs might have been obtained there, but it was never regarded as a trading post.

"Below Fort Selkirk, the Yukon River is from five to six hundred yards broad, and maintains this width down to White River, a distance of ninety-six miles. Islands are numerous, so much so that there are very few parts of the river where there are not one or more in sight. Many of them are of considerable size, and nearly all are well timbered. Bars are also numerous, but almost all are composed of gravel, so that navigators will not have to complain of shifting sand bars. The current as a general

thing, is not so rapid as in the upper part of the river, averaging about four miles per hour. The depth in the main channel was always found to be more than six feet.

“From Pelly River to within twelve miles of White River the general course of the river is a little north of west; it then turns to the north, and the general course as far as the site of Fort Reliance is due north.

“White River enters the main river from the west. At the mouth it is about two hundred yards wide, but a great part of it is filled with ever-shifting sand-bars, the main volume of water being confined to a channel not more than one hundred yards in width. The current is very strong, certainly not less than eight miles per hour. The color of the water bears witness to this, as it is much the muddiest that I have ever seen.*

“I had intended to make a survey of part of this river as far as the International Boundary, and attempted to do so; but after trying for over half a day, I found it would be a task of much labor and time, altogether out of proportion to the importance of the end sought, and therefore abandoned it. The valley as far as can be seen from the mouth, runs about due west for a distance of eight miles; it then appears to bear to the south-west; it is about two miles wide where it joins the Pelly valley and apparently keeps the same width as far as it can be seen.

“Mr. Harper, of the firm of Harper & Ladue, went up this river with sleds in the fall of 1872 a distance of fifty or sixty miles. He describes it as possessing the same

*The White River very probably flows over volcanic deposits as its sediments would indicate; no doubt this would account for the discoloration of its waters. The volcanic ash appears to cover a great extent of the Upper Yukon basin drained by the Lewes and Pelly Rivers. Very full treatment of the subject is given by Dr. Dawson, in his report entitled “Yukon District and Northern portion of British Columbia.”

general features all the way up, with much clay soil along its banks. Its general course, as sketched by him on a map of mine, is for a distance of about thirty miles a little north-west, thence south-west thirty or thirty-five miles, when it deflects to the north-west running along the base of a high mountain ridge. If the courses given are correct it must rise somewhere near the head of Forty Mile River; and if so, its length is not at all in keeping with the volume of its discharge, when compared with the known length and discharge of other rivers in the territory. Mr. Harper mentioned an extensive flat south of the mountain range spoken of, across which many high mountain peaks could be seen. One of these he thought must be Mount St. Elias, as it overtopped all the others; but, as Mount St. Elias is about one hundred and eighty miles distant, his conclusion is not tenable. From his description of this mountain it must be more than twice the height of the highest peaks seen anywhere on the lower river, and consequently must be ten or twelve thousand feet above the sea. He stated that the current in the river was very swift, as far as he ascended, and the water muddy. The water from this river, though probably not a fourth of the volume of the Yukon, discolors the water of the latter completely; and a couple of miles, below the junction the whole river appears almost as dirty as White River.

“Between White and Stewart Rivers, ten miles, the river spreads out to a mile and upwards in width, and is a maze of islands and bars. The survey was carried down the easterly shore, and many of the channels passed through barely afforded water enough to float the canoes. The main channel is along the westerly shore, down which the large boat went, and the crew reported plenty of water.

“Stewart River enters from the east in the middle of a wide valley, with low hills on both sides, rising on the north sides in steps or terraces to distant hills of consider-

able height. The river half a mile or so above the mouth, is two hundred yards in width. The current is slack and the water shallow and clear, but dark colored.

“While at the mouth I was fortunate enough to meet a miner who had spent the whole of the summer of 1887 on the river and its branches prospecting and exploring. He gave me a good deal of information of which I give a summary. He is a native of New Brunswick, Alexander McDonald by name, and has spent some years mining in other places, but was very reticent about what he had made or found. Sixty or seventy miles up the Stewart a large creek enters from the south which he called Rose Bud Creek or River, and thirty or forty miles further up a considerable stream flows from the north-east, which appears to be Beaver River, as marked on the maps of that part of the country. From the head of this stream he floated down on a raft taking five days to do so. He estimated his progress at forty or fifty miles each day, which gives a length of from two hundred to two hundred and fifty miles. This is probably an over-estimate, unless the stream is very crooked, which, he stated, was not the case. As much of his time would be taken up in prospecting, I should call thirty miles or less a closer estimate of his progress. This river is from fifty to eighty yards wide and was never more than four or five feet deep, often being not more than two or three; the current, he said, was not at all swift. Above the mouth of this stream the main river is from one hundred to one hundred and thirty yards wide with an even current and clear water. Sixty or seventy miles above the last-mentioned branch another large branch joins, which is possibly the main river. At the head of it he found a lake nearly thirty miles long, and averaging a mile and a half in width, which he called Mayhew Lake, after one of the partners in the firm of Harper, McQuestion & Co.

“Thirty miles or so above the forks on the other branch there are falls, which McDonald estimated to be from one to two hundred feet in height. I met several parties who had seen these falls, and they corroborate this estimate of their height. McDonald went on past the falls to the head of this branch and found terraced gravel hills to the west and north; he crossed them to the north and found a river flowing northward. On this he embarked on a raft and floated down it for a day or two, thinking it would turn to the west and join the Stewart, but finding it still continuing north, and acquiring too much volume to be any of the branches he had seen while passing up the Stewart, he returned to the point of his departure, and after prospecting among the hills around the head of the river, he started westward, crossing a high range of mountains composed principally of shales with many thin seams of what he called quartz, ranging from one to six inches in thickness.

“On the west side of this range he found a river flowing out of what he called Mayhew Lake, and crossing this got to the head of Beaver River, which he descended as before mentioned.

“It is probable the river flowing northwards, on which he made a journey and returned, was a branch of Peel River. He described the timber on the gravel terraces of the watershed as small and open. He was alone in this unknown wilderness all summer, not seeing even any of the natives. There are few men so constituted as to be capable of isolating themselves in such a manner. Judging from all I could learn it is probable a light-draught steamboat could navigate nearly all of Stewart River and its tributaries.

“From Stewart River to the site of Fort Reliance,*

*This was at one time a trading post occupied by Messrs. Harper & McQuestion.

seventy-three and a quarter miles, the Yukon is broad and full of islands. The average width is between a half and three quarters of a mile, but there are many expansions where it is over a mile in breadth; however, in these places it cannot be said that the waterway is wider than at other parts of the river, the islands being so large and numerous. In this reach no streams of any importance enter.

“About thirteen miles below Stewart River a large valley joins that of the river, but the stream occupying it is only a large creek. This agrees in position with what has been called Sixty Mile Creek, which was supposed to be about that distance above Fort Reliance, but it does not agree with descriptions which I received of it; moreover as Sixty Mile Creek is known to be a stream of considerable length, this creek would not answer its description.

“Twenty-two and a half miles from Stewart River another and larger creek enters from the same side; it agrees with the descriptions of Sixty Mile Creek, and I have so marked it on my map. This stream is of no importance, except for what mineral wealth may be found on it.*

“Six and a half miles above Fort Reliance the Thron-

*Sixty Mile Creek is about one hundred miles long, very crooked, with a swift current and many rapids, and is therefore not easy to ascend.

Miller, Glacier, Gold, Little Gold and Bedrock Creeks are all tributaries of Sixty Mile. Some of the richest discoveries in gold so far made in the interior since 1894 have been upon these creeks, especially has this been the case upon the two first mentioned. There is a claim upon Miller Creek owned by Joseph Boudreau from which over \$100,000 worth of gold is said to have been taken out.

Freight for the mines is taken up Forty Mile Creek in summer for a distance of 30 miles, then portaged across to the heads of Miller and Glacier Creeks. In the winter it is hauled in by dogs.

Diuck * River of the Indians (Deer River of Schwatka) enters from the east. It is a small river about forty yards wide at the mouth, and shallow ; the water is clear and transparent, and of beautiful blue color. The Indians catch great numbers of salmon here. They had been fishing shortly before my arrival, and the river, for some distance up, was full of salmon traps.

“ A miner had prospected up this river for an estimated distance of forty miles, in the season of 1887. I did not see him, but got some of his information at second hand. The water being so beautifully clear I thought it must come through a large lake not far up ; but as far as he had gone no lakes were seen. He said the current was comparatively slack, with an occasional ‘ ripple ’ or small rapid. Where he turned back the river is surrounded by high mountains, which were then covered with snow, which accounts for the purity and clearness of the water.

The trip from Cudahy to the post at the mouth of Sixty Mile River is made by ascending Forty Mile River a small distance, making a short portage to Sixty Mile River and running down with its swift current. Coming back on the Yukon, nearly the whole of the round trip is made down stream.

Indian Creek enters the Yukon from the east about 30 miles below Sixty Mile. It is reported to be rich in gold, but owing to the scarcity of supplies its development has been retarded.

At the mouth of Sixty Mile Creek a townsite of that name is located, it is the headquarters for upwards of 100 miners and where they more or less assemble in the winter months.

Messrs. Harper & Co. have a trading post and a saw-mill on an island at the mouth of the creek, both of which are in charge of Mr. J. Ladue, one of the partners of the firm, and who was at one time in the employ of the Alaska Commercial Company.

* Dawson City is situated at the mouth of the Thron-Diuck now known as Klondyke, and although it was located only a few months ago it is the scene of great activity. Very rich deposits of gold have been lately found on Bonanza Creek and other affluents of the Thron-Diuck.

“It appears that the Indians go up this stream a long distance to hunt, but I could learn nothing definite as to their statements concerning it.

“Twelve and a half miles below Fort Reliance, the Chandindu River, as named by Schwatka, enters from the east. It is thirty to forty yards wide at the mouth, very shallow, and for half a mile up is one continuous rapid. Its valley is wide and can be seen for a long distance looking north-eastward from the mouth.

“Between Fort Reliance and Forty Mile River (called Cone Hill River by Schwatka) the Yukon assumes its normal appearance, having fewer islands and being narrower, averaging four to six hundred yards wide, and the current being more regular. This stretch is forty-six miles long, but was estimated by the traders at forty, from which the Forty Mile River took its name.

“Forty Mile River* joins the main river from the west. Its general course as far up as the International Boundary, a distance of twenty-three miles, is south-west; after this

* Forty Mile townsite is situated on the south side of the Forty Mile River at its junction with the Yukon. The Alaska Commercial Company has a station here which was for some years in charge of L. N. McQuestion; there are also several blacksmith shops, restaurants, billiard halls, bakeries, an opera house and so on. Rather more than half a mile below Forty Mile townsite the town of Cudahy was founded on the north side of Forty Mile River in the summer of 1892. It is named after a well known member of the North American Transportation and Trading Company. In population and extent of business the town bears comparison with its neighbor across the river. The opposition in trade has been the means of very materially reducing the cost of supplies and living. The North American Transportation and Trading Company has erected a saw-mill and some large warehouses. Fort Constantine was established here immediately upon the arrival of the Mounted Police detachment in the latter part of July, 1895. It is described further on in an extract from Inspector Constantine's supplementary report for the year 1895.

it is reported by the miners to run nearer south. Many of them claim to have ascended this stream for more than one hundred miles, and speak of it there as quite a large river. They say that at that distance it has reached the level of the plateau, and the country adjoining it they describe as flat and swampy, rising very little above the river. It is only a short distance across to the Tanana River—a large tributary of the Yukon—which is here described as an important stream. However, only about twenty-three miles of Forty Mile River are in Canada; and the upper part of it and its relation to other rivers in the district have no direct interest for us.

“Forty Mile River is one hundred to one hundred and fifty yards wide at the mouth, and the current is generally strong, with many small rapids. Eight miles up is the so-called cañon; it is hardly entitled to that distinctive name, being simply a crooked contraction of the river, with steep rocky banks, and on the north side there is plenty of room to walk along the beach. At the lower end of the cañon there is a short turn and swift water in which are some large rocks; these cannot generally be seen, and there is much danger of striking them running down in a boat. At this point several miners have been drowned by their boats being upset in collision with these rocks. It is no great distance to either shore, and one would think an ordinary swimmer would have no difficulty in reaching land; but the coldness of the water soon benumbs a man completely and renders him powerless. In the summer of 1887, an Indian, from Tanana, with his family, was coming down to trade at the post at the mouth of Forty Mile River; his canoe struck on these rocks and upset, and he was thrown clear of the canoe, but the woman and children clung to it. In the rough water he lost sight of them, and concluded that they were lost: it is said he deliberately drew his knife and cut his throat, thus perishing, while

his family were hauled ashore by some miners. The chief of the band to which this Indian belonged came to the post and demanded pay for his loss, which he contended was occasioned by the traders having moved from Belle Isle to Forty Mile, thus causing them to descend this dangerous rapid, and there is little doubt that had there not been so many white men in the vicinity he would have tried to enforce his demand.

“The length of the so-called cañon is about a mile. Above it the river up to the boundary is generally smooth, with swift current and an occasional ripple. The amount of water discharged by this stream is considerable; but there is no prospect of navigation, it being so swift and broken by small rapids.

“From Forty Mile River to the boundary the Yukon preserves the same general character as between Fort Reliance and Forty Mile, the greatest width being about half a mile and the least about a quarter.

Fifteen miles below Forty Mile River a large mass of rock stands on the east bank. This was named by Schwatka ‘Roquette Rock,’ but is known to the traders as Old Woman Rock; a similar mass, on the west side of the river, being known as Old Man Rock.

“The origin of these names is an Indian legend, of which the following is the version given to me by the traders:—

“In remote ages there lived a powerful shaman, pronounced Tshaumen by the Indians, this being the local name for what is known as medicine man among the Indians farther south and east. The Tshaumen holds a position and exercises an influence among the people he lives with, something akin to the wise men or magi of olden times in the East. In this powerful being’s locality there lived a poor man who had the great misfortune to have an inveterate scold for a wife. He bore the infliction for a long

time without murmuring, in hopes that she would relent, but time seemed only to increase the affliction ; at length, growing weary of the unceasing torment, he complained to the Tshaumen who comforted him, and sent him home with the assurance that all would soon be well.

“ Shortly after this he went out to hunt, and remained away for many days endeavoring to get some provisions for home use, but without avail ; he returned weary and hungry, only to be met by his wife with a more than usually violent outburst of scolding. This so provoked him that he gathered all his strength and energy for one grand effort and gave her a kick that sent her clean across the river. On landing she was converted into the mass of rock which remains to this day a memorial of her viciousness and a warning to all future scolds. The metamorphosis was effected by the Tshaumen, but how the necessary force was acquired to send her across the river (here about half a mile wide), or whether the kick was administered by the Tshaumen or the husband, my narrator could not say. He was altogether at a loss to account for conversion of the husband into the mass of rock on the west side of the river ; nor can I offer any theory unless it is that he was *petrified* by astonishment at the result.

“ Such legends as this would be of interest to ethnologists if they could be procured direct from the Indians, but repeated by men who have little or no knowledge of the utility of legendary lore, and less sympathy with it, they lose much of their value.

“ Between Forty Mile River and the boundary line no stream of any size joins the Yukon ; in fact, there is only one stream, which some of the miners have named Sheep Creek, but as there is another stream further down the river, called by the same name, I have named it Coal Creek. It is five miles below Forty Mile, and comes in from the east, and is a large creek, but not at all navigable.

On it some extensive coal seams were seen, which will be more fully referred to further on.

* * * * *

“At the boundary the river is somewhat contracted, and measures only 1,280 feet across in the winter; but in summer, at ordinary water level, it would be about one hundred feet wider. Immediately below the boundary it expands to its usual width, which is about 2,000 feet. The area of the cross section measured is 22,268 feet, the sectional area of the Teslintoo, as determined by Dr. Dawson and already referred to, is 3,809 feet; that of the Lewes at the Teslintoo, from the same authority, is 3,015 feet. Had the above cross-section been reduced to the level at which the water ordinarily stands during the summer months, instead of to the height at which it stood in the middle of September when it was almost at its lowest, the sectional area would have been at least 50 per cent more, and at spring flood level about double the above area.

“It is a difficult matter to determine the actual discharge at the place of the cross-section, owing to the irregularity in the depth and current, the latter being in the deep channel at the east side, when I tried it in September, approximately 4·8 miles per hour; while on the bar in midstream it was not more than 2·5 miles per hour; and between the bar and the westerly shore there was very little current.

“The river above this for some miles was no better for the purpose of cross-section measurement. At the boundary it is narrow and clear of bars and islands for some miles, but here I did not have an opportunity to determine the rate of the current before the river froze up, and after it froze the drift ice was jammed and piled so high that it would have been an almost endless task to cut holes through it.

The current from the boundary down to the confluence with the Porcupine is said to be strong and much the same as that above; from the Porcupine down, for a distance of five or six hundred miles it is called medium and the remainder easy.

From Stewart River to the mouth of the Yukon is about 1,650 miles, and the only difficult place in all this distance is the part near the confluence with the Porcupine, which has evidently been a lake in past ages but is now filled with islands; it is said that the current here is swift, and the channels generally narrow, rendering navigation difficult.

CHAPTER III.

ADVICE TO BEGINNERS.

MEN who are thinking of going to the Klondyke regions and taking a trip of this character for the first time, will do well to carefully read the chapter on "Outfit for Miners." It is a great mistake to take anything except what is necessary; the trip is a long arduous one, and a man should not add one pound of baggage to his outfit that can be dispensed with. I have known men who have loaded themselves up with rifles, revolvers and shot-guns. This is entirely unnecessary. Revolvers will get you into trouble, and there is no use of taking them with you, as large game of any character is rarely found on the trip. I have prospected through this region for some years and have only seen one moose. You will not see any large game whatever on your trip from Juneau to Dawson City, therefore do not take any firearms along.

You will find a list of the implements for the miner in the chapter on "Outfit for Miners."

The miners here are a very mixed class of people. They represent many nationalities and come from all climates. Their lives are certainly not enviable.

The regulation miner's cabin is 12 by 14 with walls six feet high and gables eight feet in height. The roof is heavily earthed and the cabin is generally kept very warm. Two, or sometimes three or four men will live in a house of this size. The ventilation is usually bad, the windows

being very small. Those miners who do not work their claims during the winter confine themselves to these small huts most of the time. Very often they become indolent and careless, only eating those things which are most easily cooked or prepared. During the busy time in summer when they are shovelling in, they work hard and for long hours, sparing little time for eating and much less for cooking.

This manner of living is quite common amongst beginners, and soon leads to debility and sometimes to scurvy. Old miners have learned from experience to value health more than gold, and they therefore spare no expense in procuring the best and most varied outfit of food that can be obtained.

In a cold climate such as this, where it is impossible to get fresh vegetables and fruits, it is most important that the best substitutes for these should be provided. Nature helps to supply these wants by growing cranberries and other wild fruits in abundance, but men in summer are usually too busy to avail themselves of these.

The diseases met with in this country are dyspepsia, anæmia, scurvy caused by improperly cooked food, sameness of diet, overwork, want of fresh vegetables, overheated and badly ventilated houses; rheumatism, pneumonia, bronchitis, enteritis, cystitis and other acute diseases, from exposure to wet and cold; debility and chronic diseases, due to excesses.

Men coming to Klondyke should be sober, strong and healthy. They should be practical men, able to adapt themselves quickly to their surroundings. Special care should be taken to see that their lungs are sound, that they are free from rheumatism and rheumatic tendency, and that their joints, especially knee joints, are strong and have never been weakened by injury, synovitis or other disease. It is also very important to consider their tem-

peraments. Men should be of cheerful, hopeful dispositions and willing workers. Those of sullen, morose natures, although they may be good workers, are very apt, as soon as the novelty of the country wears off, to become dissatisfied, pessimistic and melancholy.

CHAPTER IV.

OUTFIT FOR MINERS.

IN giving any advice for outfits for miners, I should first state that it is a great mistake to purchase anything whatever before arriving at Juneau, Alaska. This has been a supply point for that region for upwards of ten years, and store-keepers and supply companies carry in stock exactly what is necessary for the miners. You will find that their prices are reasonable, considering the difference in cost of transportation at any point you might decide to purchase from in the United States ; in fact it is the saving of money to buy in Juneau.

In the matter of clothing, of course, it must be left to the individual taste and means of the purchaser, but the miners usually adopt the native costume of the region. The boots are generally made by the coast Indians and are of different varieties. The water boot is made of seal and walrus. It is important to take a pair of rubber boots along. Additional boots can be purchased at Dawson City. The native boots cost from two to five dollars a pair. Trousers are generally made from Siberian fawn skins and the skin of the marmot or the ground squirrel. The outer garments are generally made of the marmot skin. The people at Dawson City who are not engaged in mining, such as store-keepers, clerks, etc., generally wear these garments. Good warm flannels are important. Everything in the way of underwear is made of flannel, such as shirts. The cost of flannel shirts at Dawson City is \$5. Rub-

ber boots at Dawson City are \$10 to \$12.00 a pair, Blankets and robes are used for bedding, and should be purchased at Juneau. Wolf skins make the best robes. Good ones cost \$100 apiece, but cheaper ones can be obtained from the bear, mink, and red fox and Arctic Hare. Warm socks are made from the skin of the Arctic Hare.

If you have any delay at Juneau, you will, probably, be asked to take trips to the Giant Glaciers, but my advice is to stay in Juneau until the steamer is ready to start for Dyea. You will need all the rest you can get before starting up the Pass.

In the matter of provisions, the following is a list which is considered sufficient to last a man on his trip from Juneau to Dawson City :—

- 20 pounds of flour,
- 12 pounds of bacon,
- 12 “ “ beans,
- 4 “ “ butter,
- 5 “ “ vegetables,
- 4 cans of condensed milk,
- 5 pounds of sugar,
- 1 pound of tea,
- 3 pounds of coffee,
- 1 1-2 pound of salt,
- 5 pounds of corn meal,
- A small portion of pepper and mustard.

The following utensils should be taken :—

- 1 frying pan,
- 1 water kettle,
- 1 Yukon stove,
- 1 bean pot,
- 2 plates,

- 1 tin drinking cup,
- 1 tea pot,
- 1 knife and fork,
- 1 large and 1 small cooking pan.

The following tools should be brought as part of the outfit :—These will be found absolutely necessary to build a boat at Lake Lindeman :—

- 1 jack plane,
- 1 whip saw,
- 1 cross-cut saw,
- 1 axe,
- 1 hatchet,
- 1 hunting-knife.
- 6 pounds of assorted nails,
- 1 pound of oakum,
- 5 pounds of pitch,
- 150 feet of rope,
- 1 Juneau sled.

It is also necessary to have one good duck tent and a rubber blanket.

A good piece of mosquito netting will not be heavy and will also be very great comfort on the trip.

Do not forget to put in a good supply of matches, and take a small supply of fishing tackle, hooks, etc.

It is very important that you have a pair of snow glasses to guard against snow blindness.

It will be interesting to know the prices at Dawson City for supplies :

When I left in June, 1896.

Flour was sold in 50 pound bags at \$6.00 a bag.

Fresh beef was supplied at 50 cents a pound.

Bacon was 40 cents.

Coffee was 50 cents per pound.

Brown sugar was 20 cents per pound and granulated sugar was 25 cents a pound.

Condensed milk was 50 cents per can.

Pick axes were \$6.00 each.

Miners' shovels were \$2.00 each.

Lumber right at Dawson City was \$130.00 per thousand feet undressed, and \$150.00 per thousand feet dressed.

It is well perhaps to advise the traveller to supply himself with a small medicine box which can be purchased in Juneau, but it is not necessary if he enjoys good rugged health.

On arriving at Dawson City, luxuries will be found to be very high ; what is to be considered a very cheap cigar in the United States, two for 5 cents, sells in Dawson City at 50 cents each.

Liquors command very high prices. Whisky sells in the saloons for 50 cents a glass, and fluctuates from \$15.00 to \$25.00 per gallon, according to the supplies received from the at present overtaxed transportation companies. There was about 12,000 gallons of whisky imported into the territory from Canada the past year. Smoking tobacco was selling at \$1.50 a pound and good plug cut and fancy tobacco was selling at \$2.00 a pound.

The demand for medicine is very light, but the local traders carry a small stock of patent and proprietary medicines.

CHAPTER V.

MINERS' LUCK.

THE reports already received of the finds of gold seem beyond belief but the greater part of them are actual facts, and the following came under my personal observation:—

Alexander McDonald, on Claim No. 30, Eldorado, on the Klondyke, started drifting on his claim with four men. The men agreed to work the claim on shares, the agreement being that they should work on shares by each receiving half of what they could get out. The five together took out \$95,000.00 in twenty-eight days. The ground dug up was found to measure but 40 square feet. This was an exceptional find. The men are of course working the claim and had 460 square feet on the claim still to work out when I left for the East.

People in the East or elsewhere can hardly realize what a small space a mining claim is in this vast and comparatively unexplored territory.

William Leggatt on Claim No. 13, Eldorado, together with William Gates and a miner named Shoots, purchased their claim from a miner named Stewart, and his partner, for the sum of \$45,000.00. They did not have money to make the payment in

KLONDYKE NUGGETS.

cash but made a first payment of \$2,000.00 with the agreement to pay the balance of the purchase price, \$43,000.00, prior to July 1st, 1897. They sunk a shaft and commenced taking out \$1,000.00 per day.

They worked the pay dirt until about May 15, 1897, when they found that they had taken out \$62,000.00, and the space of the claim worked was only *twenty-four square feet*.

A young man who went to the Klondyke recently writes that he is taking out \$1,800.00 a day from his claim.

"It is stated on good authority that one claim yielded \$90,000 in 45 feet up and down the stream. Clarence Berry bought out his two partners, paying one \$35,000 and the other \$60,000, and has taken up \$140,000 from the winter dump alone. Peter Wiborg has purchased more ground. He purchased his partner's interest in a claim, paying \$42,000. A man by the name of Wall has all he thinks he wants, and is coming out. He sold his interests for \$50,000. Nearly all the gold is found in the creek bed on the bed rock, but there are a few good bench diggings.

Perhaps the most interesting reading in the *Mining Record* is the letters written by men in the Klondyke to friends in Juneau. Here is one from "Casey" Moran :

DAWSON, March 20, 1897.

"FRIEND GEORGE: Don't pay any attention to what any one says, but come in at your earliest opportunity. My God! it is appalling to hear the

KLONDYKE NUGGETS.

truth, but nevertheless the world has never produced its equal before. Well, come. That's all. Your friend,

“CASEY.”

Burt Shuler, writing from Klondyke under date of June 5, says :

“We have been here but a short time and we all have money. Provisions are much higher than they were two years ago and clothing is clean out of sight. One of the A. C. Co.'s boats was lost in the spring, and there will be a shortage of provisions again this fall. There is nothing that a man could eat or wear that he cannot get a good price for. First-class rubber boots are worth from an ounce of gold to \$25 a pair. The price of flour has been raised from \$4 to \$6, as it was being freighted from Forty Mile. Big money can be made by bringing a small outfit over the trail this fall. Wages have been \$15 per day all winter, though a reduction to \$10 was attempted, but the miners quit work. . . . Here is a creek that is eighteen miles long, and, as far as is known, without a miss. There are not enough men in the country to-day to work the claims. Several other creeks show equal promise, but very little work has been done on the latter. I have seen gold dust until it seems almost as cheap as sawdust. If you are coming in, come prepared to stay two years at least; bring plenty of clothing and good rubber boots.”

KLONDYKE NUGGETS

Thus far little attempt to mine quartz has been made in the interior of Alaska and the Northwest, although many quartz croppings have been seen. It would cost too much to take in the machinery and to build a plant until transportation facilities are better. In time, however, quartz mining operations will commence, for the placer mines were washed down from the mother veins somewhere. If the washings have made the richest placers in the world, what must the mother veins be? One dares hardly to imagine.

This is a brief description of the gold region in the Northwest.

For further and more detailed information on Routes and Distances, Transportations, Mining Laws, How to Stake a Claim, Where to Register Your Claim, Modes of Placer Mining and Quartz Mining, Return of Gold from the Diggings, Mortality, Cost of Living, etc., I refer the reader to my book on this subject entitled "Klondyke Facts," a work of about 224 pages. It is published in paper covers at 50 cents a copy with maps and illustrations, and is sent postpaid by the publishers on receipt of 50 cents.

AMERICAN TECHNICAL BOOK CO.,

45 Vesey Street,

New York, N. Y., U. S. A.

38720
2577a

A B C of Electricity. Now in its 62d thousand. By WM. H. MEADOWCROFT. 1 volume, 12mo, cloth, 50 cents Fully illustrated.

This excellent primary book has taken the first place in elementary scientific works. It has received the endorsement of Thomas A Edison. It is for every person desiring a knowledge of electricity, and is written in the simplest style so that a child can understand the work. It is what its title indicates, the first flight of steps in electricity.

Scholars' A B C of Electricity. By WM. H. MEADOWCROFT. One volume, 12mo, illustrated, cloth, 50 cents.

The author of this work has designed it for the use of teachers and scholars. A large number of simple experiments have been added, with notes relative to the work. It is the primary book for school use.

A Most Important Work of General Interest.

The X Ray ; or, Photography of the Invisible and its Value in Surgery. By WILLIAM J. MORTON, M. D. Written in collaboration with EDWIN W. HAMMER. 1 volume, 12mo, cloth and silver, 75 cents; paper, 50 cents.

Everyone has been waiting for this work to give full information of Professor Rontgen's marvellous discovery. The work explains in clear and simple style how these extraordinary pictures are taken through solids. Full description is given of the apparatus used, and the text is profusely illustrated with half tone illustrations giving fac-simile copies of the pictures taken from the negatives of the author. The subjects are varied.

The A B C of the X Ray. By WM. H. MEADOWCROFT. 1 volume, 12mo, cloth and gold, 75 cloth; paper, 50 cents

The first primary work on the subject. A book for the people. The author of "A B C of Electricity," showed clearly in that work his ability to explain a technical subject for the laymen who know nothing of scientific terms. He has written this work about the X Ray in his usual clear and simple style, and a wide circulation of this useful book is assured. The text of the author is beautifully embellished with fine engravings, and nothing is omitted that will give the public a clear knowledge of this remarkable discovery of Prof. Rontgen. The public would do well to secure both of these important works.

The Art of Cooking by Gas. By MARION HURLAND. 226 pages, 12mo, paper, 50 cents; cloth, 75 cents.

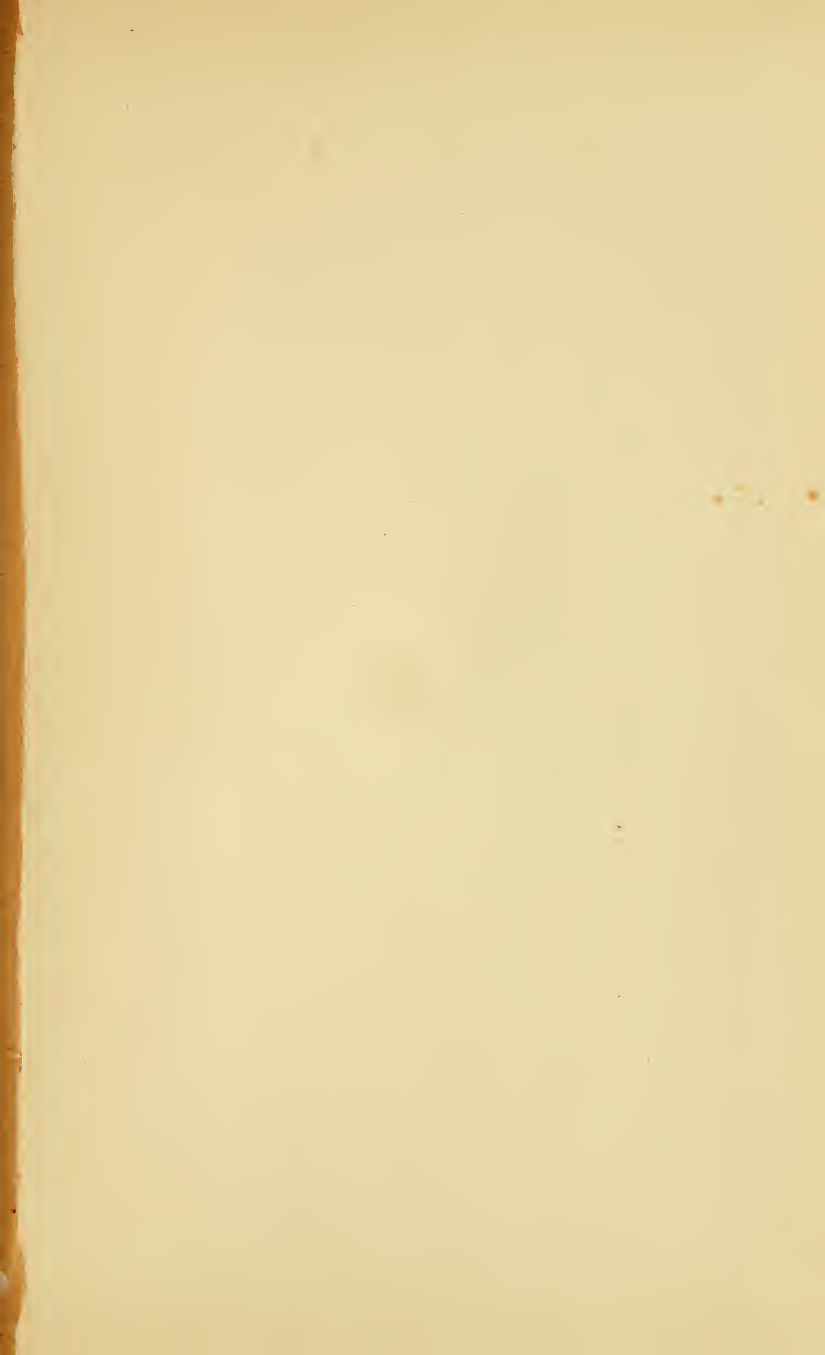
A timely work by a recognized authority. This new book shows the economy, cleanliness and comfort of cooking by gas. There are nearly 1000 recipes which are excellent. This valuable work will save its price many times to all housekeepers.

Any of the above books sent, postpaid, on receipt of price

BY THE PUBLISHERS

AMERICAN TECHNICAL BOOK CO.

45 VESEY STREET, NEW YORK.





LIBRARY OF CONGRESS



0 005 908 177 9 ●